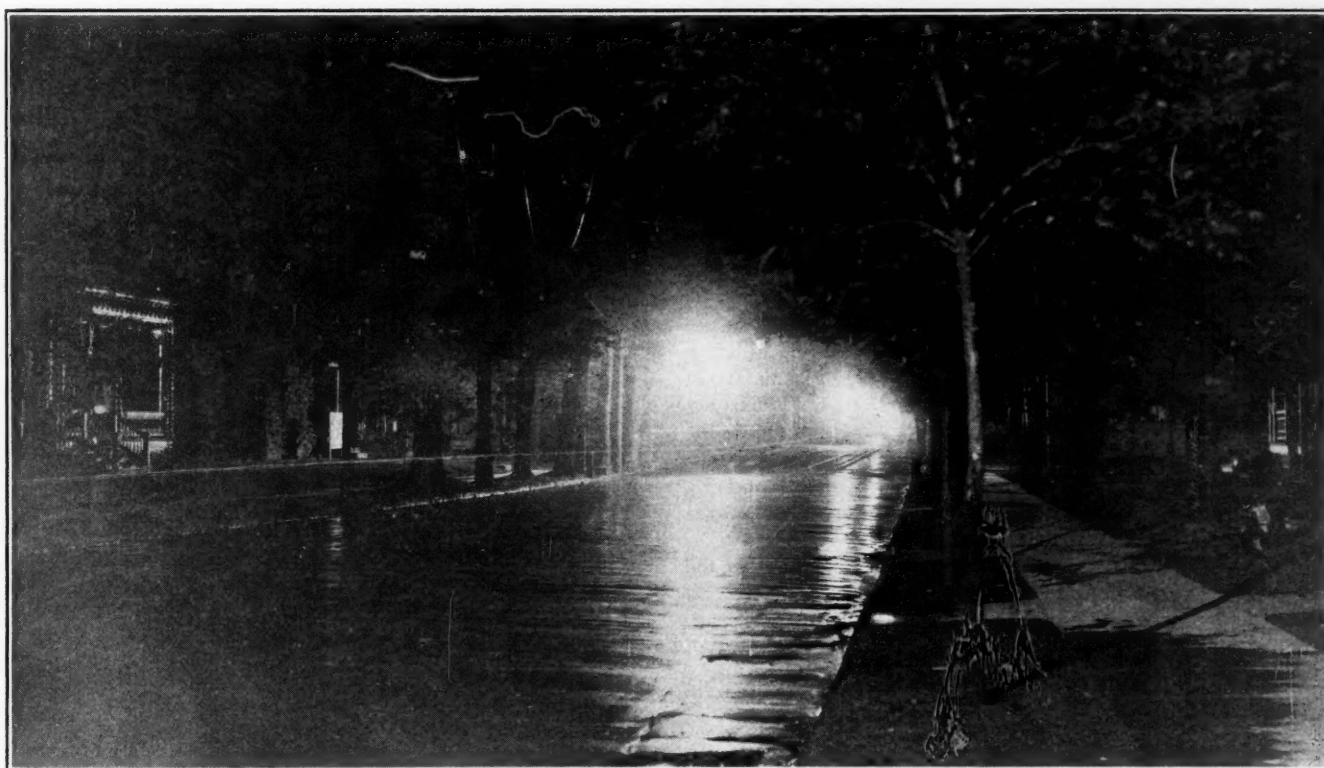


# Municipal Journal And Engineer

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No. 2



ENCLOSED ARC LAMPS IN ROCHESTER, N. Y.

Lights low; street wet. Note distinctness of objects beyond light. Compare with view, page 49.

## INTENSE STREET LIGHTING

Tungsten Incandescent and Flaming Arc Lamps Compared with Carbon Arcs—Arch Lighting Objectionable—Watts and Costs Per Foot of Street in Several Cities—Examples of Intense Lighting

By ALTON D. ADAMS

WHILE the efficiency of electric street lamps has been doubled and tripled during the past few years, the power devoted to this purpose has been multiplied by four or more in many instances, resulting in an intense street illumination of much higher cost. In many cases an increase of the power for illumination was necessary, in some it has become excessive, and often it is still ill applied.

Intense street lighting has been accomplished in the main with tungsten incandescent and flame arc lamps. The tungsten lamps give nearly three times the candle power of the carbon incandescent for an equal consumption of energy, and more

than twice as much illumination is obtained with the metallic as with the enclosed carbon arc and equal power. Until the advent of intense street lighting within the past two years it was the general custom to space carbon arcs 200 to 500 or more feet apart, the shorter distance between lamps being found as a rule only on important streets in fairly large cities. As the carbon arcs consume 300 to 500 watts each the old spacing commonly gave about 2.5 to less than one watt per foot of length in the lighted streets, and at points midway between lamps on the longer spacings the illumination was practically negligible.

Carbon incandescent lamps gave street illumination as bad or worse than that with the old arcs, for they were generally



ARCHES IN SOUTH BEND, IND.  
Appearance in daylight not pleasing

spaced several hundred feet apart and mounted singly in units of not over 30 candle power, so as to consume less than one-half watt per foot of street.

Now the tungsten has displaced the carbon incandescent lamp in the great majority of instances, sometimes with more power or shorter spacings, and almost always with increased illumination. So, too, the metallic arcs have often displaced the carbon, not infrequently with a much larger number of lamps per mile of street. While lighting in the outlying streets of cities and towns has thus been materially improved, it is mainly in the central or business portions that intense lighting has developed. A striking feature of this intense street lighting is the mounting of two or more arc or tungsten lamps on a single post or cross-cable instead of the single lamp more common before, and it is this grouping of lamps that leads to the higher powers and costs per mile of streets.

Cables or arches carrying lines of tungsten lamps across the streets have been adopted for intense lighting in a number of cities of which Grand Rapids, Mich., and Norfolk, Va., are good examples. At Grand Rapids the arches cross the street at intervals of 100 feet and each carries 14 tungsten lamps of the 75-watt size, requiring 1,050 watts per arch, and 10.5 watts per foot in length of the street. Norfolk streets also have cross arches 100 feet apart and each arch in this instance carries 10 75-watt lamps giving a total of 750 watts per arch and 7.5 watts per linear foot of street lighted. In Grand Rapids the arch lighting is paid for by the merchants at the rate of \$7 per lamp, 98 cents per foot of street and \$98 per arch yearly. The Norfolk rate is \$15 per lamp and \$1.50 per foot of street per year.

An objection to the method of street lighting with cross arches of lamps is the striped or zebra effect produced unless the arches are very close together, which would require a large amount of power. Thus, in the case of Norfolk, if the street is as much as 90 feet wide the lamps of each arch are only 10 feet apart, while the distance between the arches is 100 feet, and there must therefore be alternate bands of light and darkness.

A method of arch lighting not open to the objection just named is that where the arches run along the center or each side of the street with lamps at short intervals, and this produces a very uniform illumination. This method of street lighting is in use at Belvidere, Ill., where 800 lamps are supported 4 feet apart on arches or cables that run along each side of the main street. Each of these lamps operates with 10 watts, so that the required power is 5 watts total per foot length of streets, or 2.5 watts per foot along each side, and there are 2 feet of street per lamp.

The more common and desirable method of locating the tungsten or flame arc lamps for intense lighting is on posts along both sides of the street alternately. Intense street lighting on this plan has been adopted in scores of places of which a few

of the more important are here mentioned. Among the notable installations of intense street lighting with more than one tungsten lamp per post those at Aurora, Buffalo, Chicago, Des Moines, Gary, Indianapolis, Los Angeles, Minneapolis and Vancouver are representative.

In Aurora there are 320 posts, each carrying three tungsten lamps, each lamp consuming 225 watts. The posts are 50 feet apart on each side of the street, so that the watts per foot of street are nine, and there is one lamp to each 16.6 feet on each side of the street.

On Genesee street, Buffalo, posts, carrying five 60-watt tungsten lamps each, are erected 120 feet apart on each side, giving 300 watts per post, 5 watts per foot length of street, and one lamp for each 12 feet of street. For the maintenance and operation of these lamps during 4,000 hours per year the rate is \$37.50 per post, or \$7.50 per lamp and 62.5 cents per foot in length of street lighted.

A number of streets in Chicago have groups of tungsten lamps on posts, and in one instance the posts are 50 feet apart and carry five 60-watt lamps each on both sides of the street, so that there are 300 watts per post, 12 watts per foot length of street, and 5 feet of length per lamp. For the maintenance and operation of these lamps the charge is \$109.10 per post per year, amounting to \$21.82 per lamp and 87 cents per foot length of street.

In Des Moines each post carries five 100-watt lamps and the distance between posts is 44 feet, so that the required watts are 500 per post and 22.7 per foot length of street, the posts being located on both sides. For this lighting the rate is \$69.50 per post, \$13.90 per lamp and 63 cents per foot of street. In this instance there is a 100-watt lamp for each 8.8 feet of street.

Gary, Ind., has posts along Broadway that carry two 60-watt and one 100-watt tungsten lamps, with four of the 60-watt and one 100-watt at corners. Even on the basis of the posts between corners, each requires 220 watts, and as the standards are on each side of the street there are 8.8 watts per foot of street and 8.3 feet per lamp. Corner posts increase the watts per foot. For this lighting service the rate is \$75 per post or \$3 per foot of street per year.

On Washington street, the long and wide highway of business in Indianapolis, groups of five 100-watt tungsten lamps are carried on posts 84 feet apart along each side, so that 500 watts are required per post and 9.5 watts per foot of street. With the distance of 84 feet between posts there are 8.4 feet in length of street per lamp, and the total number of posts on Washington and other streets is about 400, corresponding to 2,000 lamps.

Los Angeles has tungsten clusters of five 100-watt lamps on posts spaced 60 feet apart on both sides of the street, so that 16.6 watts are required per foot of length and there is a lamp for each 6 feet. The yearly rate for this service is \$58.50 per cluster of five lamps, which amounts to \$11.70 per lamp and to \$1.95 per foot of street lighted.

In Minneapolis clusters of five 100-watt lamps are located 30 feet apart on both sides of the streets to the number of 510, or 2,550 lamps. This spacing gives 12.5 watts per foot and 8 feet of street per lamp. Per cluster the annual rate is \$78, amounting to \$15.60 per lamp and to \$1.95 per foot of streets.

Vancouver has its lamp clusters 110 feet apart along each side of the street, and five 100-watt lamps per cluster, so that 9.1 watts are used per foot of street and there is one lamp to each 11 feet.

In each of the above instances of street lighting with clusters of tungsten lamps the supporting posts are located on both sides of the streets, and the figures for watts required and for cost per foot of the length of street lighted include the lamps on both sides. As a result, if the rate or the required watts per front foot of property on the street is wanted, the figures given for these items must be divided by two.

For more convenient use the above data as to required watts

and as to rates for intense street lighting with clusters of tungsten lamps are here tabulated.

From this table it appears that three to five lamps are often used per cluster and as many as 14 lamps per arch, giving clusters that operate with as much as 500 watts each and arches with 1,050 watts. The clusters or arches are located 44 to 110 feet apart, the former usually on both sides of the street, giving 5 to 22.7 watts per foot in the length of street lighted, and 2 to 16.6 feet per lamp.

With the old style incandescent street lamps the power seldom reached one watt per foot, and the annual rate was usually below 20 cents per foot, with generally more than 100 feet of street per lamp. On the other hand, incandescent lighting was not formerly much used on main business streets.

The method of cluster lighting necessarily tends to large power and high cost per foot of street where a good degree of illumination is wanted at points midway between clusters, and equally satisfactory results can be got at much less power and cost by the use of only one tungsten lamp per post. Important reasons for this are that the intensity of illumination varies inversely as the square of the distance from its source and that the cost of new tungsten series lamps for street lighting is independent of their candle power up to and including the 75-watt size and increases at only a moderate rate with the higher candle powers.

To illustrate the point as to least intensity of illumination, take the case of 500-watt clusters located 50 feet apart along each curb of the street, each cluster containing five 100-watt lamps. For the cluster the total candle power should be 400,

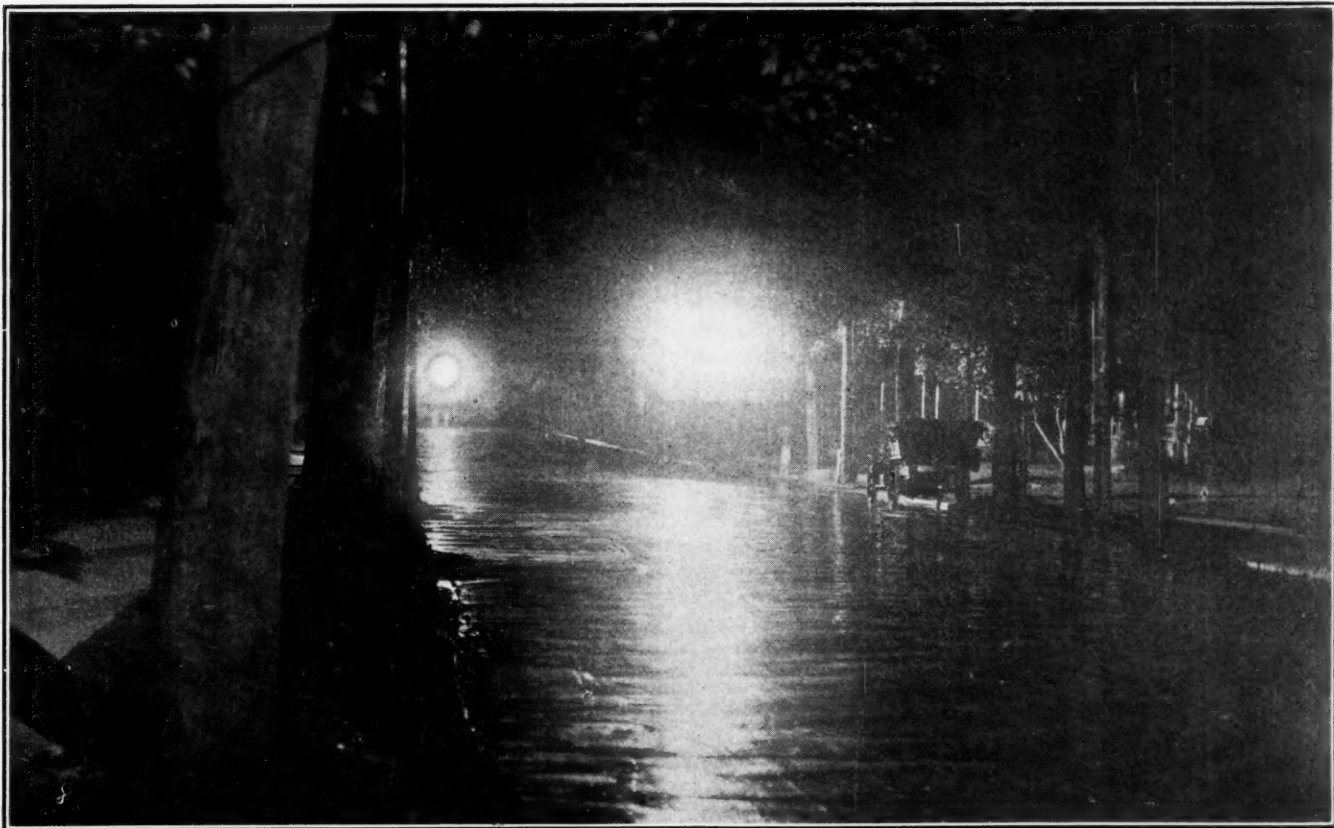


TEMPORARY DISPLAY LIGHTING IN ROCHESTER, N. Y.

at  $1\frac{1}{4}$  watts per candle power, and at points on the curb midway between clusters the illumination on surfaces at right angles to the rays of light is about 0.64 candle foot.

Next let the 100-watt lamps be located singly at points 20 feet apart along the curb of the street, so as to give 80 candle power per post. At points along the curb midway between these single lamps the illumination on surfaces normal to the rays of one lamp is about 0.8 candle foot, or one-fourth greater than that above found with the clusters of five lamps each. On the other hand, the five-lamp clusters 50 feet apart along each

POWER AND RATES FOR STREET LIGHTING										
Place.	Lamps per Cluster.	Watts per Cluster.	Clusters Feet Apart.	Watts per Foot of Street.	Feet of Street per Lamp.	Annual Cost per Cluster.	Cost per Lamp.	Cost per Foot Street.	Sides of Street. Both.	Posts or Arches. Posts.
Aurora .....	3	225	50	9.0	16.6	.....	.....	.....	.....	.....
Buffalo .....	5	300	120	5.0	12.0	\$37.50	\$7.50	\$0.625	.....	.....
Chicago .....	5	300	50	12.0	5.0	109.10	21.82	4.36	.....	.....
Des Moines .....	5	500	44	22.7	4.4	69.50	13.90	3.16	.....	.....
Gary .....	3	260	50	10.4	8.3	75.00	25.00	3.00	.....	.....
Indianapolis .....	5	500	84	11.9	8.4	.....	.....	.....	.....	.....
Los Angeles .....	5	500	60	16.6	6.0	58.50	11.70	1.95	.....	.....
Minneapolis .....	5	500	80	12.5	8.0	78.00	15.60	1.95	.....	.....
Vancouver .....	5	500	110	9.1	11.0	.....	.....	.....	.....	.....
Belvidere .....	(Per Lamp) 10	(Lamps) 4	5.0	2.0	.....	.....	.....	.....	.....	.....
Grand Rapids .....	14	1,050	100	10.5	7.3	98.00	7.00	0.98	Across.	Arches.
Norfolk .....	10	750	100	7.5	10.0	.....	15.00	1.50	.....	.....



MAGNETITE LAMPS ON A ROCHESTER STREET

Street wet. Illumination greater than on page 47. Glare also greater, chiefly because lamps are too low



curb require a lamp for each 10 feet of curb and 10 watts per foot of curb, or double these figures per foot of the length of street, while the same size of lamp located singly 20 feet apart represent a lamp for each 20 feet of curb and 5 watts per foot of curb.

By using a single lamp per post under above conditions the total power and total number of lamps required by the five-lamp clusters to give less light midway between posts are reduced by one-half.

As to the cost of lamp renewals to maintain any given candle power at a post, either six 50-watt lamps or four 75-watt lamps give a total of 240 candle power, and each of these sizes costs the same amount each.

Intense street lighting with metallic flame arc lamps is well illustrated in Toledo and St. Louis, where the numbers of arcs per mile of street have been carried to a point probably never equalled before.

The new street lighting in Toledo is to include about 2,500 metallic flame arc lamps of the 4-ampere size, and on the more important streets pairs of these lamps are located 80 feet apart along each side so that there is an arc for each 20 feet of the length of street and 16 watts per foot. The rate for this lighting is \$45 per lamp per year, amounting to \$2.25 per foot of the length of street.

In St. Louis the streets formerly lighted with 138 enclosed carbon arc lamps now have the intense illumination of 240 4-ampere and 427 6.8-ampere metallic arcs. The 6.8-ampere lamps operate with 500 watts each and are spaced 80 feet apart along some of the streets, alternate lamps on opposite sides requiring 6.25 watts per foot of length. Along Broadway, St. Louis, 80 posts carry three each of the 4-ampere arcs, and these posts are about 60 feet apart on each side of the street, so that there is an arc for each 10 feet and 32 watts per foot.

#### CO-OPERATIVE SANITATION

WHAT appears to be needed in this country at the present time is some method of co-operation by which needed sanitary reforms can be brought about at least expense. It is unbusiness-like to compel the purification of the sewage of a large upstream city in order to protect the water supply of a small city lower down, provided pure water can be furnished the latter in some better and cheaper way. Legislation that clothes the State authorities with power to prevent the pollution of sewage, but does not give them power to compel the purification of water or to control pollution by trade wastes is unfortunate. It naturally leads to litigation rather than co-operation, and may retard rather than hasten necessary sanitary reforms. If our State authorities cannot be trusted in this matter it may be that a proper solution of the difficulty will be found in the establishment of district boards similar to those in England and Germany, such boards having jurisdiction over the limits of particular watersheds. In some respects these natural hydrographic boundaries have advantages over artificial State boundaries. In the near future also our national government will doubtless take a hand in the matter. In whatever form the authority may be constituted the idea of co-operation should prevail and ironclad rules against stream pollution should give way to a rational distribution of the burden of purification of both water and sewage, and an equitable adjustment of cost made between the parties interested, thus decreasing the total expense of sanitary measures required and utilizing natural resources for the purification of sewage in water as far as this is safe.

If the system of water carriage of sewage continues in use, the time will some day come when the sewage of all of our cities will be purified, partially or completely, and all surface water supplies filtered. It is proper to anticipate this consummation as far as our means permit, but meantime it is good business and sound common sense to spend our money first where it will go furthest and do the most good, building water filters and sewage purification works, sometimes one, sometimes both, as they may be needed.—George C. Whipple, in a paper before Institute of Chemical Engineers.

## RAPID ROAD BUILDING IN KANSAS

### Grading and Rolling Eighteen Miles of Dirt Road in One Day by Volunteer Labor—Organization and Construction Methods

Coffeyville, Kan., is one of the leading manufacturing centers in that state of such materials as brick, glass, roofing tile and pottery products. About eighteen miles distant is another manufacturing town, Independence. These two are connected by an old county road which was laid out thirty years ago, but has never been improved, although carrying considerable traffic.

Several years ago the desirability of furnishing a better roadway was realized, but it was not until last July that anything definite was done, when the leading business men of both cities got together and decided to endeavor to make of this an oiled highway with a minimum width of roadway of thirty feet. This union of prominent men of the two cities resulted in the organizing of the "Montgomery Good Roads Association."



PART OF ROAD AS IT APPEARED IN THE MORNING

The plans as finally decided upon involved what looked like the impossible proposition of building this road in one day by volunteer labor obtained from the two cities. Those whom it was most difficult to get interested in the project were the farmers themselves who owned the land along the roadway, and who believed that the idea was to provide a speedway for automobile owners. Even the mail carriers used their influence with the farmers, however, and through their efforts, but especially through those of the Commercial Club and a few prominent men and the Coffeyville *Daily Journal*, most of the objections were finally overcome and the plans were completed. In order to provide the funds a finance committee was



STRETCH OF FINISHED ROAD





VITRIFIED PIPES READY TO BE LAID FOR CULVERTS

appointed in each of the cities, and every one was asked for contributions, which ranged from sums of \$5 to \$200, and reached the total amount of about \$4,000.

In order to obtain materials and machinery for building the road, this was divided into two divisions, the southern or Coffeyville half being placed in charge of Mr. Oscar Jansen, of that city, and the Independence half, in charge of Mr. Fred Maine. Each of these divided his division into sections of one mile in length and appointed a foreman to take charge of each, with directions to have the roadway cleared of grass, hedges, rubbish and small trees. The County Commissioner, Mr. H. W. Dale, obtained the necessary graders, scrapers and rollers, and placed them at intervals along the route before the day on which the road was to be built, November 15. Grading machinery was collected from every township in the county, and that used by the street departments of the cities was obtained also. All culvert and bridge work was placed in charge of one man, who saw that the necessary sand and stone and vitrified clay culvert pipe were distributed where needed.

The Mayors of both Coffeyville and Independence issued proclamations making Tuesday, Nov. 15, a holiday, and asked that all places of business and schools be closed for the day. Judge Flannelly dismissed court and requested his office force to be out and assist in the work. The women of the two cities made arrangements to provide food for the thousand or more laborers at the noon hour, and again at 6 o'clock, if necessary. For laborers reliance was placed upon volunteers of the citizens, and early in the morning of the 15th, which was fortunately fair and clear, these citizens, including doctors, lawyers, bankers, farmers and laborers, gathered at the centers of the two cities, from which points automobiles and wagons provided by citizens took them to the several sections to which they had been assigned.



BUILDING CONCRETE BRIDGE CULVERT

The first work to be done was the plowing, grading and leveling of the road, cutting ditches along each side of the road and preparing for the vitrified pipe culverts for drainage purposes and for the small bridges which were to be constructed.

Following this, harrows and drags leveled the rough places and broke up the big clods, and rollers following behind consolidated the roadway. Many of the teams and laborers were furnished by the farmers having land close to the road. Wives of the farmers and of the leading citizens of both cities distributed baskets of luncheon among the workers at noon. By the time the sun had set, the road, which was over a rough and hilly country, and on which not even a sod had ever been turned, had been graded and rolled into an excellent thoroughfare.

One of the most difficult problems solved in this rapid construction was getting oil distributed over the entire 18 miles of roadway. One of the local oil companies originated the scheme adopted, which consisted in laying a line of pipe (which was borrowed from several of the oil companies) along the line of the road and placing hose connections with stop cocks at regular intervals along the same. On account of the extreme drought it was believed, when the road was constructed, that the earth surface was too dry for effective use of the oil at that time, but it was decided to wait until the first heavy rain, which would permit better consolidation, and then drag and roll the road and apply the oil by hose attached to the several connections along the pipe line.

## LIABILITY OF MUNICIPAL OFFICERS

### On Unauthorized Contracts—Not Liable When Acting in Good Faith—Court Decisions in Several States

It must be taken to be well settled by repeated decisions that when officers of a municipal corporation, acting in good faith, contract in their official capacities with parties having full knowledge of the extent of their authority, or who have equal means of knowledge with themselves, they do not become individually liable, unless the intent to incur a personal responsibility is clearly expressed, although it should be found that through ignorance of the law they may have exceeded their authority.

An instructive case is that of *Newman v. Sylvester*, 42 Ind., 106. Here it appeared that the common council of a city passed an ordinance for the improvement of a street, and a contractor whose bid was accepted for the work completed it to the satisfaction of the city engineer. An estimate was made and allowed against an abutting lot owner, who denied liability. The Mayor and Council refused to order a precept on the ground that the lot was not within the limits and jurisdiction of the city. The contractor sued the Mayor and Common Council, alleging that by advertising for and receiving proposals for the work they had held forth that they had jurisdiction over that part of the street when they knew that they had not and thereby intended to and did deceive; that the plaintiff had no knowledge to the contrary, and believed they had, and by their action was thrown off his guard and prevented from making inquiry. The defendants in their answer alleged that they had voted for the passing of the ordinance by mistake, without fraud or intentional wrong, and under a misapprehension as to the locality of that part of the street; that the plaintiff had the same knowledge as they had, and that they acted in good faith without any intention whatever of defrauding the plaintiff. In the court below a demurrer to the answer was sustained and judgment given for the plaintiff. The defendants appealed. The action was maintained on the theory that the Common Council was acting as a mere agent, governed by the same rules and liable to the same extent as ordinary agents for private persons, and so, having no authority, was personally liable to the party contracted with, either upon the contract or for deceit.

The court held that the action of the Council in passing the

ordinance and its proceedings under it were not calculated to throw the plaintiff off his guard or prevent him from making inquiry about the city limits. It was not expressly stated by it that the street was within the city. The most that could be said was that it acted as if it believed it to be. Nothing was said or done to prevent the plaintiff from ascertaining for himself whether the place was within the city limits.

On the general question of the liability of one assuming to act as agent for another without authority the court, adopting a view favorable to the agent, said:

If he enters into the contract in the name and as the agent of another, and does it honestly, fully disclosing all the facts touching the authority under which he acts, so that the one contracted with, from such information or otherwise, is fully informed of the authority possessed or claimed by him, he is not liable on the ground of deceit or for misleading the other party. It is material in such cases that the party complaining of a want of authority in the agent should be ignorant of the truth touching the agency. If he has a full knowledge of the facts, or of such facts as fairly and fully put him upon inquiry for them, and he fails to avail himself of such knowledge, or the means of knowledge reasonably accessible to him, he cannot say he was misled, simply on the ground that the party assumed to act as agent without authority, in the absence of fraud.

On the question of liability as public officers the court said:

If the party contracts as a public officer, and in that capacity acts honestly, he will not ordinarily be personally liable. If his authority to act is defined by public statute, all who contract with him will be presumed to know the extent of his authority, and cannot allege their ignorance as a ground for charging him with acting in excess of such authority, unless he knowingly misled the other party.

For these reasons the Supreme Court held that the facts alleged in the answer constituted a bar to the action and that the demurrer thereto ought to have been overruled, and reversed the judgment of the Superior Court.

In *Houston v. The Board, etc., of Clay County*, 18 Ind., 396, it was held that if township trustees, acting as such, exceeded their authority in making a contract for the erection of a bridge which they were not authorized to do by statute, and did so innocently, under a mistake of law, in which the other contracting party equally participated with equal opportunities of knowledge, neither at the time of making the contract looking to personal liability, the trustees would not be personally liable, nor would the township be liable.

In another case village trustees, acting as such, made a contract for the building of abutments for a bridge within the village. After completion of the work and payment in part by the village it repudiated liability. The contractor's assignee sued the trustees individually. It was held that the defendants, being officers of the village, acting *bona fide* and without concealment or fraud, were not personally bound upon the contract. It was not necessary to pass upon the liability of the village, but the court intimated that it was difficult to see why it should not be both legally and equitably liable. *Lyon v. Irish*, 58 Mich., 518.

Two village trustees were alleged by a plaintiff to have made a contract of employment with him to act as chief of police. He knew their position as trustees and that his appointment would have to be confirmed by the board of trustees. He sued them individually for damages for nonperformance of the alleged contract. There was no proof of any special obligation or intent on the part of the defendants to become personally liable on the contract. They were held not liable. *Miller v. Board*, 15 Mis. (N. Y.), 322, 37 N. Y. Supp., 766.

Where highway commissioners, in a proceeding to lay out a highway, being unable to agree with a land owner as to the damage he would sustain, submitted the matter of damages to arbitration, and executed their bond in their individual names containing an express covenant to abide by and perform the award, they having no power to bind the town in this manner, it was held that they were not individually liable on the bond. *Mann v. Richardson*, 66, Ill., 481.

The members of a board of education requested an architect to make plans for a school building and subsequently made an agreement for his employment. They afterwards notified him

to cease work on the plans as they did not wish them. He sued the city unsuccessfully and then sued the members of the board individually. It was held he could not recover, as the board's want of statutory power was as much within the plaintiff's cognizance as in the defendants', and as both parties acted in good faith, there being no guaranty by the defendants of their authority. *Lawrence v. Toothmaker*, 75 N. H., 148.

A statute vested the power to engage special counsel for cities in the Mayor and Common Council. An ordinance of a city attempted to delegate this power to the City Collector. Acting under the direction of the void ordinance the City Collector entered into a contract engaging special counsel for the city. The contract was held invalid, and in an action thereon by the attorney engaged, against the city and the collector, the latter was held not liable under the rule. *Edwards v. City of Kirkwood (Mo.)*, 127 S. W., 378.

A contract for grading a city street provided that the work should be done according to the plans on file and in obedience to the directions of the city engineer "as to the mode of doing the work." The engineer set his stakes wrong, so that they indicated a grade higher than called for by the contract. The contractor conformed the grade to the stakes, and subsequently sued the city and the engineer for the extra work caused him. The engineer was held not liable, the error being an honest one, and no bad faith on his part being charged or any intention to injure the plaintiff. *Wilson v. St. Joseph (Mo.)*, 102 S. W., 600. And where a director of a school district executed as such a note for the benefit of the district, believing (in good faith, though erroneously) that he was authorized to bind the district, it was held that he was not personally liable on the note. *Humphrey v. Jones*, 71 Mo., 62.

In *Southworth v. Flanders*, 33 La. Ann., 190, the Mayor and administrators of the City of New Orleans were sued by the Recorder of Mortgages for the Parish of Orleans for \$10,000 under the following circumstances. The defendants, in their official capacity, passed a city ordinance authorizing the Recorder to obtain and record certain certificates and copies of tax payments at a cost not exceeding \$10,000. The Recorder accepted and complied with the contract. It was held that, assuming that the ordinance was illegal, the defendants were not personally liable. The court stated its understanding of the general rule of law on the subject to be that when officers of a municipal corporation, clothed with legislative functions involving a legislative discretion, make a mistake as to the extent of their powers, a mistake which is shared by the party with whom they contracted, having equal opportunities of information touching the powers delegated to such officers, and there is nothing in the proceeding looking to personal responsibility, the officers in such case are not personally liable.

The court also said that if any action did lie in such a case against the officers personally it would not be on the contract, but would be *ex delicto*. That would also be the case in most of the other states, but in some the officers, if liable, could be held upon the contract.

#### STREET LIGHTING BY PORCH LIGHTS IN GREENWOOD

At the beginning of 1910 the municipal electric light plant of Greenwood, S. C., reduced by 10 per cent their rates for current, which were already low, but the increased business during the year has caused the financial showing to be the best in the history of the plant, we are informed by Mr. A. J. Sproles, superintendent of the plant. The rates, we believe, are to be continued this year the same as last, but the Commissioners of the water and electric light plant decided on Jan. 4 to furnish current free of charge for porch lights, providing the residents use current for lighting and that they furnish a 40-watt tungsten lamp on the front porch on a rigid pendant fixture, so located that it will give as much light as possible to the street or sidewalk. This light must be used only between the hours of 6 p. m. and 7 a. m. While the owners must provide the lamps, the Commissioners will furnish these to them at actual cost.



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JANUARY 11, 1911

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## Sewage Disposal Patents

Up to ten years ago little was heard of patented processes or appliances for purifying sewage. The results of the investigations of private engineers and sanitarians, as well as of city, State and national boards, were published and given freely to the public. About that time Cameron patented the septic tank apparatus in England, and that and the process in this country, and the process patent, with certain limitations, has been sustained by our highest court.

We believe that no patent is claimed for contact beds or sprinkling filters, but the various styles of moving sprinklers used in England are, we believe, all patented; and one of the sprinkler heads which is being used in the United States is

patented, as are most of the dosing appliances which have been invented.

Much has been said recently about what bids fair to be a successor of the septic tank—the Emscher or Imhoff tank. This has been patented in this country by Mr. Imhoff, and quite recently the same engineer has patented a combination of such tanks with a biological filter. (See our issue of January 4, page 40.) This is a modification of the Travis tank, and the English papers have stated that Mr. Imhoff may find trouble in collecting royalty because of Dr. Travis' previous invention. And both these are modifications of the septic tank. The complication which all this might seem to involve is, we are informed, actually threatened in one or two cases. Purification plants at Atlanta, Ga., for which contracts have been let, are to include Emscher tanks, for which it is proposed to pay a royalty to Mr. Imhoff. But the holder of the American septic tank patent is demanding royalty because of the same tanks. And it is possible that the troubles of this same city will not end there. We understand that a method of aerating the filter by ventilators to the sub-drains (described in our January 4 issue) is to be adopted in that plant; and also that a patent (No. 656,665) by Mr. Burton J. Ashley is claimed to cover such ventilation.

It will be extremely unfortunate if this multiplication of patents on engineering inventions should retard progress in sewage treatment rather than advance it, as is the aim of the patent system. And yet this is likely to be the case if there is an uncertainty among engineers and city officials as to just what disposal methods are covered by patents and who is entitled to the royalty. Much of this trouble might have been avoided had the several State and municipal investigating bodies taken out patents on their discoveries and given the same freely to the world. What is now to be hoped for is an early submission of such cases to the highest courts and the prompt decision of these, based upon a more intelligent appreciation of the engineering, chemical and biological principles involved than has been the case in several such decisions of late.

## Sewage Purification Plants as Nuisances

In a paper before the Institute of Chemical Engineers, Mr. George C. Whipple, in a paragraph headed "Purification Plants as Nuisances," called attention to certain precautions which should be taken in designing and locating sewage purification plants. The paragraph was as follows:

Purification works themselves may be a source of nuisance. There is a natural opprobrium attached to a region where such works exist that results in a recognized deterioration of property values. The processes used for the purification of sewage not infrequently result in odors that may be distributed over considerable areas. Where the purification works are entirely covered, as some kinds of works may be, little or no nuisance may result, but where, for example, the sewage is first submitted to putrefaction in a septic tank and the septic effluent then sprayed into open air upon the surface of sprinkling filters this exposure of the atomized liquid results in the liberation of odors that may reach distances of half a mile from the plant, depending upon the amount and character of sewage treated, the local topography, prevailing direction of the wind, humidity in the atmosphere and other conditions.

Frequently high winds will carry the spray itself for several hundred feet with inevitable bacterial pollution of the air. In the operation of sprinkling filters also it has been found that at certain seasons of the year swarms of flies breed in the porous beds. These are very troublesome in the immediate vicinity of such works. In considering the need of sewage purification it is proper to balance these nuisances against those resulting from the discharge of unpurified sewage into a body of water. It not infrequently happens that the installation of sewage purification works merely substitutes one nuisance for another.

A cause of nuisance, possibly even more common than those mentioned, is the failure to use sufficient care in operating the plant, either to prevent nuisance or to secure the highest efficiency. It is altogether too common for cities, having once constructed a plant, to expect it to operate automatically, with no attention whatever, or to place in charge some one with no great amount of intelligence and no experience whatever in

purification plants, and thereafter pay no attention to the results obtained by him. In some cases State Boards of Health are empowered to require the construction of sewage purification plants, but have no control over their operation; and a city upon which the construction of such a plant has been forced by the State Board, finding that it has no further authority in the matter, absolutely neglects the plant. A plant so neglected is almost certain not only to fail to make any adequate return for the money invested in it, but may result in actual nuisance. In either a water or a sewage purification plant care in operation is fully as important as in designing or construction.

### TAKING TRAFFIC CENSUS

In a recent paper on road construction Prof. A. H. Blanchard, of Providence, R. I., gives some useful hints on methods of making traffic counts on highways, the desirability of which was recently commented upon in these columns. He said:

The principles underlying the essential elements of any classification of traffic may be stated briefly as follows: Differentiation between horse-drawn vehicle traffic and motor car traffic; a division of each of these classes of traffic into pleasure and commercial traffic; the determination of the weight per linear inch of width of tire of all types of commercial traffic, a factor of the utmost importance in the design of the substructure of the road; subdivision of pleasure motor car traffic upon the basis of weight and speed, since in many instances the greatest damage to ordinary macadam road is caused by seven-seat touring cars, limousines or landaulets traveling at speeds of forty to sixty miles per hour.

As a practical, economical and efficient plan the following method is proposed for adoption under average conditions. For the open season from April to October, inclusive, the traffic should be taken during four periods of three days each, one period being in April, May or June, one in July, one in August and one in September or October. As local conditions may dictate, either Friday, Saturday and Sunday or Saturday, Sunday and Monday could be taken, thus insuring information relative to the usual abnormal Sunday motor car traffic, and in some cases, traffic above the week day average on Saturdays, while the Friday or Monday traffic would give a fair indication of the normal week day traffic. It is evident that by this plan more reliable and essential facts are secured relative to traffic than by the other methods considered.

### HYPOCHLORITE AT NIAGARA FALLS

Among the many cities in the East which have been using hypochlorite for water sterilization is the city of Niagara Falls, New York. The Norwood Engineering Company is constructing a water-purification plant for improving the supply of the city, which is obtained from Niagara River, and is one of the most seriously polluted in the country. As it is some time before the filtration plant can be completed and put into service, the city is, meantime, under the direction of this firm, relying upon the use of hypochlorite as a temporary expedient for reducing the typhoid rate.

Considerable complaint is being made by the citizens and by certain of the daily papers against this use of hypochlorite, it being stated that a decided and unpleasant taste and odor are given to the water thereby. One or two experts have already visited the city to ascertain whether this objectionable feature can be prevented and how, and it is reported that the application of the hypochlorite is to be placed at once in the hands of a chemical and a bacteriological expert, both professors in the University of Buffalo.

There seems to be no doubt that there has been more or less taste in the water since the application of the hypochlorite, and we believe that it is no longer denied that the taste is due to the addition of that substance. The water commissioners, however, believe that the possible saving of life or sickness from typhoid warrants the temporary annoyance which this causes. The city bacteriologist, Dr. E. B. Horton, however, is opposed to the continuation of its use, claiming, in a letter to us, that it is "a most needless procedure, adding a poisonous drug to drinking water, when we have a safe and sane method of purification in slow sand filtration." While there has been a considerable reduction in typhoid since the use of hypochlorite was begun,

Dr. Horton believes this to be caused by the general boiling of the water by the citizens rather than by the hypochlorite. He has sent us a number of figures of tests made by him of raw and treated water, in which the number of bacteria per c.c. in the two respectively were as follows:

Date	In raw water	In filtered water
Oct. 21	14,400	130
Nov. 4	30,700	120
" 8	6,600	50
" 11	32,500	600
" 14	26,200	1,600
" 16	15,900	750
" 21	17,500	1,750
" 23	16,600	2,000
" 29	36,000	4,800
Dec. 4	20,000	6,800
" 7	16,000	3,300
" 11	9,000	1,900
" 14	9,700	1,200
" 18	4,400	350

On November 27 liquefying colonies destroyed all the plates from raw water in 36 hours; the bacteria in the treated water amounting to 8400.

These results the doctor does not consider as being very satisfactory. The tests given above show an average reduction of bacteria of 90.1 per cent. While this is not nearly as satisfactory a result as should be given by either a slow or rapid sand filter, nor as good as has been produced by the use of hypochlorite at other places, it would seem almost certain that it reduces the danger from typhoid by a very large percentage, and is well worth while, unless it is reasonably certain that the hypochlorite is causing injury to the people generally. It has been claimed by all advocates of this method that no harm whatever can be caused by the hypochlorite. This is something which, if there is any question about it, should be ascertained at once by recognized medical experts, as the use of hypochlorite is being adopted in scores of cities throughout the country.

### OIL FOR PRESERVING WOOD BLOCKS

Readers of MUNICIPAL JOURNAL AND ENGINEER have been kept advised of the discussion which has been continued during the past year or two concerning the nature of the creosote or preservative oil which should be specified and used in the preparation of wood paving blocks. In our issue of Oct. 26, 1910, were printed the specifications recommended by a committee of the American Society of Municipal Improvements, which differed in only a few respects from those which had previously been recommended by a committee of the Organization of City Officials for Standardizing Paving Specifications.

Since our publication of these specifications, we understand, they have been criticised as providing for an oil which could not be obtained in the open market, and certain comments of this nature have found their way into print. These criticisms were called to the attention of the committee, and their reply to the same will be of interest to all who are concerned in this matter of wood block paving.

The committee states that it "is readily understood and appreciated by any one acquainted with the tar industry that any coal tar can be filtered so as to produce a tar sufficiently free from carbon which, when mixed with a proper creosote oil, will produce a product such as is called for in these specifications. [Those of the American Society of Municipal Improvements.] The by-product coke-oven tars produced in Nova Scotia are well adapted to the manufacture of such an oil." The committee also is informed that one of the large manufacturers of paving blocks obtains oil meeting these specifications from two different sources which are entirely independent of each other.

The committee quotes from a letter written to the chairman by Dr. Gellert Alleman, professor of chemistry at Swarthmore College, as follows:

I have no hesitation in stating that any dealer in tar can fulfill the specifications to which you refer by either filtering the tar and adding a certain proportion of creosote oil to it, or, in some cases, by adding creosote oil to the unfiltered tar. There are a number of coke oven tars now made in this country



which contain less than 8 per cent of free carbon, and, at the same time, possess a gravity of about 1.15. Such tars unfettered, when reduced with creosote oil, will yield the material you require. There are two Philadelphia oil firms which could supply this material, but would be unwilling to do so unless the order were quite large.

The committee also refers to the Bulletins of the Bureau of Municipal Research of Cincinnati, treating at some length the question of creosote for paving blocks, one of which bulletins was abstracted by us in our issue of August 10, 1910. One of these reports stated that a coal tar is in common use for treating wood paving blocks which is produced as a mixture of coal tar creosote of a gravity approximately between 1.03 and 1.08 and of a coal tar or pitch with a gravity of 1.10 or higher and containing small percentages of free carbon less than four. This bulletin states that this mixture is commercially feasible and readily obtainable in large quantities at prices from six to eight cents per gallon.

The committee further states that, if it is the case that this oil can be furnished in large quantities by only one or two firms in this country, it is not because of any monopoly or patent, but because these firms are ready and willing to furnish it at such low cost (it has an offer in writing of seven cents a gallon) that there is no inducement for others to compete in the business, at least until the wood paving industry attains larger proportions than at present.

This particular discussion is not as to the desirability of using the creosote called for by the specifications, but only as to whether they would permit of sufficient competition among paving contractors to insure reasonable prices under them. It would appear as though a test of this might be obtained by efforts to secure bids under these specifications, and we hope that such a test will shortly be made by some city or cities which will give a definite proof as to the correctness of the committee's claim that any wood block manufacturer can obtain the creosote called for at a price which will permit of full competition.

### THE IMHOFF TANK—AN EXPLANATION

Editor MUNICIPAL JOURNAL AND ENGINEER,

239 West Thirty-ninth street, New York City.

January 3, 1911.

SIR:—It has just come to my notice that some persons have expressed the supposition that I had some other than a purely professional interest in the Imhoff tank because I have recently on several occasions called attention to it and advocated it for the separation of the coarse suspended matter from sewage and for the treatment of the deposited sludge.

I hope you will permit me through your columns at once to disabuse the minds of such persons by emphatically denying any basis for such a presumption and stating that I have not and never will have any commercial interest, directly or indirectly, in any apparatus or process forming a part of any work which, as a consulting engineer, I have recommended or may recommend to public or private clients.

Since my last return from Europe it is true that I have repeatedly called special attention to the Imhoff tank. But this was done because I now consider it to form one of the most important and useful steps of progress in sewage treatment we have made for a number of years, and because I desired that my own country, where so many cities and towns can be benefited by it, should enjoy its advantages as soon as possible. My interest is purely and solely a professional one, and my communications have been made frequently, partly by invitation and partly to advance the subject more rapidly than might otherwise have been the case.

It may be proper to add a few words as to what my relation has been to the sewage sludge question since the time when in 1880 I first studied it in England. At that time and up to the present, as everyone knows, the sludge disposal has been the most troublesome feature of sewage work wherever it was necessary to separate the gross suspended matter from the sewage. The trouble was due to the nuisance created by the offensive odors at the place of treatment and to the difficulty of quickly drying the sludge for permanent disposal.

One proposition after another failed to prevent the usual foul odors, and with the advent of the septic tank these had practically come to be considered a "sine qua non," a wide belt of land being generally reserved around the works to secure immunity from the nuisance. Such a condition never appealed to me as a final one, and I considered that the question of

sludge treatment still remained the most pressing one for solution. I was, therefore, on the constant lookout for any favorable progress in that direction.

What appeared to me the most promising work in this direction was that of Dr. W. O. Travis, of Hampton, south of London, England, who was separating into two compartments by gravity most of the suspended from the liquid matter, and who deserves a large share of the credit in this modern movement. I then became acquainted with Mr. Wattenberg, Engineer of the Emscher district in Germany, a few years before his death, who was studying the Travis tank with reference to its introduction in his district.

During that study, Dr. Imhoff, then also an engineer of the Emscher district, discovered certain facts which made it possible to improve upon the Travis tank, and not only to get a sludge decomposition which was inoffensive, but a sludge that would dry quickly and allow of a non-odorous and economical removal and disposal.

These promising discoveries, after the unsuccessful efforts of many years in both America and Europe, were one of the causes for making a trip to Europe in 1908 to witness the actual conditions and results. Apparently these were satisfactory, but the experience had been so short that I was not yet entirely sure of a permanent success, and intended to make another visit two years later, which was last summer.

After returning home in 1908 my hopeful anticipations were not shared by most of those with whom I spoke, and naturally my assurance was not increased thereby, the subject being more of a chemical and bacteriological than an engineering one.

Fortunately, the Engineering Department of Philadelphia, through its Chief Engineer, Mr. George S. Webster, determined to erect a small Imhoff tank and to get experience data regarding the process under American conditions. The results after nearly a year's trial were confirmatory of those obtained in Europe. Meanwhile, conversations with Dr. Imhoff, during his visit to America in 1909, and further European correspondence and publications, proved that no serious difficulties were appearing.

Last summer I again visited a number of such plants in Germany and without exception found them inodorous and yielding quickly drying sludge, without incipient troubles of any kind. There were then already over 25 plants in operation.

Therefore, as all my own doubts had been removed regarding a large sphere of usefulness for these tanks (whatever modifications might later be found advisable under some special conditions) and as I learned that the royalty charge was very small, I felt it to be my duty to my American conferees to call attention to this advance, so that we might keep abreast of the progress which is being made elsewhere.

RUDOLPH HERING.

### RETAINING MUNICIPAL POSITIONS.

We have been requested by a subscriber to print the following letter, which speaks for itself:

MUNICIPAL JOURNAL AND ENGINEER,

New York City.

GENTLEMEN: Why is it that the superintendent and employees of a municipal electric light plant are always uneasy at the time of municipal elections. Is it possible that professions have gone so deeply into politics? It is true that city officials like to undo what the former officials have done; and when such is the case something turns upside down usually. Why is it that the operatives of the city's machinery take any hand in the municipal elections? On the other hand, if they are doing their duty they should make such a record that the new city officials would be glad, exceedingly glad, to have them remain. Let us, as professional men, superintendents and employees of municipal electric light and water and ice plants, strive to run our end, no matter who is head of the city; strive to make it pleasant for him and those whom we serve. Do not mix politics with professions.

I have a record of the last five or six years where changes have been made on account of new city officials, and in several cases where politicians rather than professional men have been appointed and have taken charge of municipal plants, boilers have blown up, generators have been burned out, engines have been wrecked and the city has had law suits on account of the lines not being kept up and poor service generally. Good men are scarce and their services should be appreciated.

Yours respectfully,

F. B. HARRIS,

Superintendent Water and Light Plant,  
Covington, Ga.

## NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads — Streets, Water Works, Lighting and Sanitary Matters — Fire and Police Items — Government and Finance

### ROADS AND PAVEMENTS

#### Year's Work on Streets in Atlanta

Atlanta, Ga.—The annual report of City Engineer R. M. Clayton gives the amount of work done by the Street Department as follows: Curbing and sidewalks laid during the year 1910, 35.8 miles, at a cost of \$179,809.86. The majority of the sidewalks were paved with cement. The total cost of it all was charged against the property owners and thus cost the city nothing. Wherever sidewalks were laid, curbing was put down also, so the figures quoted above mean that much of both has been finished. Total sewers laid during the year were 12.43 miles, at a cost of \$100,983.57. Of that amount 2.62 miles, costing \$47,329.47, were paid for with bond issue money. The cost of the remaining was assessed against the property owners. No less than 10.94 miles of new street paving was put down in the year. That includes chert, bitulithic, bituminous macadam, old granite block and creosoted wood block. The total cost was \$282,640.81. Of that amount \$249,425.10 was paid by the city and the property owners combined, the city paying a third and the property owners the balance. The other cost, or \$53,215, was paid by the street railway company.

#### More Grade Crossings Going

Buffalo, N. Y.—Nine more Buffalo grade crossings are to be abolished. These are the Erie crossings at Main, Genesee, Doat and Colvin streets, Delevan, Kensington, Walden and Delaware avenues and the Military road. The contract, which was signed last week by the Grade Crossings Commission and the Erie Railroad Company, also provides for a crossing not at grade at East Amherst street when that thoroughfare is opened. With these crossings abolished there will be few left to deal with. All of these crossings are dangerous and have been the cause of complaints for years.

#### One Grade Crossing Change to Cost \$600,000

Cincinnati, O.—City Engineer Shipley says that the Rookwood crossing of the Pennsylvania lines would probably be the first grade crossing to be abolished with the funds provided by the recent sale of the grade crossing bonds. The estimated cost of the work is \$600,000, one-half of which is to be borne by the railroad and one-half by the city. Of the city's portion, the Cincinnati Traction Company will be required to bear a just and equitable share. This, however, shall not exceed one-half of the city's burden of the cost.

#### Will Widen Streets in Burned District

Cincinnati, O.—Councilman Robert O'Brien has proposed to remedy the evils of traffic congestion in the vicinity of Sycamore street, where a large area was recently burned, by having the city condemn portions of the property affected for the purpose of widening streets.

#### Plan Laws for Suburbs to Give Better Streets

Clayton, Mo.—Delegates from each municipality in the county met at Clayton last week to discuss legislation beneficial to the suburban towns. The principal subject discussed was the drawing up of a bill which, if made a law, will allow the County Court to spend on work in the towns 60 per cent of the road taxes paid by the municipalities. Under the existing law residents of municipalities in the county pay the regular tax of 40 cents on the \$100 valuation in addition to the 20-cent special road tax, and the county is not allowed to spend money on their roads. The grade-crossing question was also discussed. Senator Buel L. Matthews, of St. Louis County, has announced that he will introduce a bill in the Legislature giving the officials of municipalities and the judges of the county courts power to eliminate grade crossings. Samuel Hodgdon, of Webster Groves, presided. Addresses were made by Judge Herman Hackmann and Wilfred Jones.

#### Big Increase in Improvements

East Orange, N. J.—In an annual report made to the East Orange City Council, which, by reason of the fact that he is soon to relinquish his office, is in effect a valedictory, City Engineer Frederic A. Reimer showed that the construction of new improvements under his supervision during the year 1910 was between four and five times as great as that of 1909, and the purely maintenance work over \$7,000 in excess of that of the previous year. The value of new improvements aggregated in the present year \$305,702.73, and that of 1909 \$67,369.73, according to the report, while the figures for maintenance work were respectively \$54,881.63 and \$47,510.42. In the new work was included 9793 feet of sewer extensions, 8752 feet of drainage extensions, 29,936 feet of new paving, 22,238 feet of new sidewalks, 11,540 feet of new curbs and gutters in Park avenue and 168 new street lamps. The maintenance work embraced resurfacing of 34,154 feet of roads, resetting 25,106 feet of curbs, relaying 2476 square yards of gutter, oiling 26.84 miles of streets, cleaning 153 streets and repairing 13,273 feet of sidewalks. Besides that snow and ice was removed from sidewalks at a cost of \$4,096.77 to the property owners.

#### Year's Street Work in Minneapolis

Minneapolis, Minn.—According to figures compiled by the City Engineer, \$2,274,015 was spent during 1910 in street improvement work. Sixteen miles of paving was laid at a cost of \$525,000, and \$99,700 was expended in constructing 51 miles of curb. Other expenditures were: 26 miles of sewers, \$530,000; 40 miles of water mains, \$380,000; 28 miles of sidewalks, \$73,900; roads, \$90,593; filtration plant, \$65,000; bridges, \$29,822; Street Commissioner work, \$480,000.

#### Nine Grade Crossings to Go

New York, N. Y.—The Public Service Commission has ordered nine grade crossings to be abolished by the Long Island Railroad on its north side division in Flushing. The Legislature at its last session appropriated \$200,000 for such work in Queens County, inasmuch as the law requires that the city and State shall each pay one-quarter of the cost. The remaining half is to be paid by the company. With the amount thus available the Commission could only order an improvement to cost not more than \$800,000, but inasmuch as the Commission substantially approved the plan submitted by the Long Island for a general improvement covering about 13,000 feet of roadbed, which the city's engineers also approved, the company has agreed to pay the extra cost which will bring the entire amount to more than \$1,000,000.

#### Pouring and Spraying of Oil Compared

Plainfield, N. J.—During the season of 1910 two carloads of Standard road oil were spread by means of Saybolt pneumatic wagons, by which method the oil is forced out in a fine spray under air pressure. This process met with general approval from the fact that the street could be used immediately after the application of the oil. While much less oil is used than in the pouring process the treatment does not last as long and should be repeated at intervals of four or six weeks. The street committee, in their annual report, say that, judging from two years' experience, the expense of treating all streets so that they should be dustless during the entire season would be more than the city can now afford.

#### Opposes Acceptance of Any More Macadam Pavements

Schenectady, N. Y.—Commisisoner Quackenbush, in his annual report, says that he is opposed to the acceptance by the city of any more macadam pavements, as they wear out quickly and are expensive to repair. The street repair account, last year, as given in the report of Superintendent Charles Hogan, was \$7,000.



**Cement Pavement Disintegrating**

Portland, Ore.—Several thousand square yards of Hassam pavement on East Twenty-first and Milwaukee streets, laid within the last four months, will have to be removed for the reason that it is disintegrating, according to a statement made by Manager George H. Hyland, of the Oregon Hassam Paving Company. This is due, he says, to the fact that the cement used in the pavement was worthless, which fact was unknown to the paving company when the pavement was laid. The pavement will be replaced immediately with good cement at the expense of the cement firm which produced the inferior material. The loss to the cement firm will reach approximately \$50,000, it is said.

**Lien on the Streets**

Topeka, Kan.—For the first time in the memory of the officials of the city, Topeka has had a lien served on some of its streets, sidewalks and alleys. Claiming that John Ritchie, a local paving contractor, owed them various sums, the Topeka Vitified Brick & Tile Company and C. A. Ritchie have notified them that a lien has been served on considerable paving work. The brick company claims that Contractor Ritchie owes them \$755.95 for materials. C. A. Ritchie claims \$2,535.50 for work and material.

**Paving Record in South Bend**

South Bend, Ind.—Brick pavements costing \$55,746.99 were laid during the year, while \$30,219.69 was spent in the construction of macadam pavements. Asphalt pavements, which were contracted for in 1909, were completed this year at a cost of \$15,681.11.

**Points to Be Covered by Indiana Road Law**

Indianapolis, Ind.—A subcommittee consisting of William F. Elliott, chairman; B. J. T. Jeup, secretary; C. A. Kenyon, William Fortune, L. Ert Slack and W. L. Slinkard, representing the Indiana Good Roads Association, has begun work on the draft of a bill to be presented to the General Assembly in January, under which it is hoped that better roads for Indiana may be obtained. This committee was appointed by Addison C. Harris, who has been elected chairman of the general legislative committee of the Indiana Good Roads Association. Although this committee is not bound by restrictive instructions from the general committee, it has been asked to report one or more bills which will embrace these general points: A state highway commission and its powers; State aid in constructing and maintaining roads; special taxes on vehicles; use of convict labor, and amendments to present statutes. These ideas were selected by the general committee after a long discussion, as embracing the fundamentals of needed legislation for relief in road matters in the State.

**City Engineer Reports on Paving Work Done**

Syracuse, N. Y.—Public improvements costing \$495,087.83 have been completed during 1910, according to the report of City Engineer Henry C. Allen to Commissioner of Public Safety Frank M. Westcott. During the year more than 5.69 miles of pavement have been laid, which is a larger mileage than any previous year in the history of the city with the exception of 1898 and 1899, when 6.39 and 6.94 miles, respectively, were laid. At present the city has 74.43 miles of pavement, or more than one-fourth of the total of approximately 270 miles.

The report shows the following work carried to completion during the year: Pavements, 5.69 miles, costing \$285,743.64; sewers, 5.64 miles, costing \$65,236.35; sidewalks, 9.26 miles, costing \$23,633.60; streets graded, 1.47 miles, costing \$14,311.47; miscellaneous contracts, including street sprinkling, flushing and the like, cost \$106,162.77; total, \$495,087.83.

**Annual Report on Streets**

Springfield, O.—Springfield has an area of 11.1 square miles, parks of 225.71 acres, 14.69 miles of paved streets, 17 miles of macadam streets, 48 miles of graveled streets, 46 miles of sewers, 2,426,525 square feet of cement walks and 284,856.45 feet of cement curb and gutter, according to a report of the engineering department of the city government submitted to the service director by Engineer M. J. Bahin. During the year 320 permits for laying cement curb and gutter were issued, a total of 122,250 square feet being laid and 12,271 feet of curb and gutter.

**SEWERAGE AND SANITATION****160 Miles of Sewers Laid in Four Years**

Baltimore, Md.—Chief Engineer Calvin W. Hendrick, of the Sewerage Commission, has submitted to Mayor Mahool, for use in the latter's annual message to the City Council, a statement showing that in the four years of the Mayor's incumbency 160 miles of sanitary and storm water sewers have been laid. Mayor Mahool regards this evidence of work that has been accomplished in Baltimore's biggest municipal undertaking with particular pride. The statement from Mr. Hendrick calls attention to the fact that the enormous disposal works on Back River have been practically completed, and the roof almost laid over the new sewerage pumping station on East Falls avenue. The pumps for this station, almost the largest of their kind in existence, have been completed and are awaiting shipment from the factory. Mr. Hendrick still sticks by his promise that the completed portion of the system in the eastern and northeastern sections of the city will be ready to be put into operation by 1912.

**Contamination of Water Increases Yearly**

Cleveland, O.—Proof that the city's water supply is becoming more contaminated each year is seen by Superintendent Ford, of the Health Department, in a report showing the results of the bacteriological examination of water from the new intake each day since the year of the completion of the new water tunnel. The bacteriological report shows that during the year 1904 the presence of colon bacilli was discovered in the water only on 12 days. In 1905, 11 days was the total. The total for 1907 was 29 and in 1908 it jumped to 40 days. In 1909 it was 43, and for the first 11 months of the present year it was 57. Indications are that the complete report will show a total several points above 60. Health officials compare this bacteriological showing of the water supply with the typhoid reports. The total number of typhoid deaths for this year will run to about 104, as against 67 for the year 1909.

**Sewer and Water Pipes in Same Trench**

Mt. Jackson, Va.—The town has just completed an up-to-date water and sewer system. With a natural drainage the town was adapted to an easy disposal of its sewage. When the water system was voted on favorably last summer some of the citizens agitated a sewer system along with the gravity water system. Acting upon this, a committee secured the necessary money to purchase the pipe. This pipe was laid in the same trench with the water line, and the entire work was completed at a cost of a little more than \$12,000. Kneisley Bros., of Woodstock, Va., had charge of the work, Mr. H. A. Kneisley, of the firm, supervising it. A reservoir of 600,000 gallons has been built in Massanutten Mountain, several large springs furnishing the water. A pressure of 110 pounds has been developed.

**No Public Drinking Cups Allowed in Idaho**

Boise, Idaho.—The public drinking cup was abolished as an institution within the borders of Idaho January 1. Drinking fountains in the public buildings probably will be supplied with paper cups which can be used only once. The new law prohibits the use of common drinking cups on all railroad trains, railroad stations, hotels, stores, public and private schools and a number of other institutions. Circulars have been issued by the railroad companies ordering their employees to remove all cups from passenger cars while traversing Idaho.

**Sewers Choked by Street Flushing**

Philadelphia, Pa.—Complaints have come from many sections of the city because of the filthy condition of the streets, but more particularly because Contractor Vare's men are pushing the filth, left after the snow melted, into the sewers instead of carting it away. One result has been the choking up of the inlets, rendering the smaller sewers useless, and in some sections causing water to back up into cellars. Besides the trouble with sewers, there has been considerable complaint from the water officials regarding the use of filtered water at a time when it may be necessary to pump raw water into the mains.

## WATER SUPPLY

### Watervliet Water Situation Serious

Watervliet, N. Y.—A mass meeting of Watervliet citizens was held last week in Corporation Hall, when action was taken on the present water situation. The meeting was called by Mayor Hanratta and the Water Board. The large hall was packed with prominent residents of the Arsenal City. Mayor Hanratta said in calling the meeting to order that he and the Water Board had done all in their power to protect the city from fire. He made arrangements with the Roy Mill, where thousands of gallons of water are being pumped from the Hudson into the mains, and the Watervliet Arsenal and Green Island Water Company are furnishing several thousand gallons daily. The Mayor said he had visited Commissioner of Public Works Mann, of Troy, and that official assured him that the Collar City will furnish fire engines in case of a fire occurring in Watervliet. "Gentlemen," said the Mayor, in closing, "I am out for a municipal plant. The Hydraulic Company is not trying to help us out." Other speakers expressed themselves as favoring a municipal plant.

### Favor New Water Rate

Cleveland, O.—A special committee of Council, appointed some months ago to look into the question of establishing new water rates will advise that a ready-to-serve charge of \$1 be substituted for the present minimum charge of \$1.25 for houses of six rooms or less and \$2.50 for houses containing more than six rooms. This single minimum of \$1 would be charged whether water is used or not and would entitle the consumer to the use of 2500 cubic feet of water without additional charge. Above this \$1 charge there would be a charge of 40 cents for every thousand feet of water used.

### Water Company Sues City

Connersville, Ind.—The Connersville Hydraulic Company has brought suit in the Circuit Court to enjoin the City of Connersville from tearing down and removing the engines, boilers and pumps of the city water works, located on the hydraulic company's ground, to the city's new plant. The city formerly received its water supply through the canal maintained by the hydraulic company, and erected a pumping station on the company's ground, the lease for which expired about 18 months ago. The hydraulic company alleges that by the terms of its lease to the city, after the expiration of the time it was to run, the buildings and pumping machinery, if not removed before, become the absolute property of the company. The president of this company is E. Dwight Johnston. Finly H. Gray, Mayor; the members of the Council, the contractors and T. H. Stoops, of this city, are defendants.

### Water Contract Renewed

Elizabeth, N. J.—The contract between the City of Elizabeth and the Elizabeth Town Water Company has been renewed for a period of three years. In the contract, however, were important alterations to benefit the city. The special committee on water supply that had in charge the matter of resuming the contract first reported favorably, and later a resolution empowering the proper city officials to execute a contract in accordance with the recommendations of the report was adopted. The new contract will reduce the cost of water for each fire hydrant from \$15 to \$10 and the water company will agree to furnish free water for street sprinkling. The rates to municipal buildings and fountains will remain the same, as will the rates for houses. The discount on bills paid at the proper time will be 10 per cent, instead of 5 per cent. So that the city may be protected there will be a clause in the contract providing that the city can revoke the contract at any time after giving a notice of 90 days. This clause was inserted, it was explained, so that if the city at any time thought it proper to install a municipal water plant—as recommended by Mayor-elect Stein—it could be in a position to do so. The new contract took effect on December 31.

### Year's Work of Minneapolis Water Department

Minneapolis, Minn.—During 1910, up to Dec. 29, the City Waterworks Department spent \$779,897.58. Of this, \$550,000 was for construction work. The total receipts for the year up to Dec. 29 were \$516,764.22, with approximately \$35,000 to be added before the new year, making all told \$551,764.22. Construction work this year has been unusually heavy, work on the filter plant alone costing \$76,352.46. Then large feeder mains have been laid, entailing heavy outlay. The cost of material used amounted to \$270,340.33. It has been necessary to draw over \$200,000 on the surplus of \$414,000 of last year. The revenue this year was \$90,000 more than a year ago, \$347,330.96 for water being collected in 1909, as compared with about \$430,000 for 1910. During the year 4170 meters were installed, compared with 3455 last year, and 3612 taps were made, compared with 2978 in 1909.

### Must Drink Raw Water

Philadelphia, Pa.—Street cleaners have opened fire plugs and otherwise wasted water to such an extent while flushing streets recently that the water in the Oak Lane reservoir was so depleted that it was necessary for the Water Bureau to supply raw water to make up the deficiency for that section of the city depending upon that source of reserve supply for filtered water. It was several days before the pumping stations and filtration system were able to catch up with the loss sustained by the wasteful use of water in flushing the streets. Manufacturers in the northeast have complained of the lack of water to properly operate their mills. One concern on Lehigh avenue, where many plugs were opened at one time and cleaners refused to use the hose as directed, there was but one pound of water pressure, and it was impossible in some instances to feed water to boilers which were supplying power without shutting down the plant and reducing the steam pressure.

Considerable complaint has been made of freezing fire plugs, which Chief Dunlap declares is avoidable, and is the result of the constant opening and closing of plugs which freeze while the water is permitted to drip from an improperly closed plug. The fire plugs are so constructed that when the flow is properly shut off the valve is so low in the ground that it will not freeze. The water left in the plug when shut off quickly leaks through a duct into the earth, entirely emptying the exposed section of the plug.

### Improvements in Water and Light Plants

Mishawaka, Ind.—In the Electric Light and Water Department the electric light extensions and improvements cost estimated \$4,000; 9000 feet of water mains cost \$8,005; three pure water wells, 10 inches in diameter, about \$3,500. Total in department, \$16,000. The Water Department now has 1816 patrons and the Electric Light Department 1460 patrons, a fine growth. In 1911 the city will in all probability build a pumping plant in East Mishawaka, giving the city pure water in the mains.

### Water Meters in Petersburg

Petersburg, Va.—City Engineer Robert Budd, on a visit to Norfolk, made the following statement of the results obtained in Petersburg from the use of meters:

No city which ever adopts meters is willing to abandon them. There was feeling against their use in Petersburg when they were put in the ground, but that city will not give them up now, for they are profitably used. Before meters were installed Petersburg was pumping 2,500,000 gallons of water a day. The first few months after the installation of the meters the pumpage was reduced 90 per cent. The daily pumpage now is 800,000 gallons. The average household charge in Petersburg, under meters, is 65 cents per month. Before they were used I was paying \$36 a year for water.

There was a panicky feeling in Petersburg when the meter system was adopted. The pumpage fell very low, and there was a cry that the city would not get enough revenue from its water rents to maintain the water department. Gradually this feeling subsided as the people became accustomed to meters.

Despite the revenue of the Water Department of Petersburg has been reduced by the installation of meters, this has been more than offset by the decrease in the operating division of the department. We are able to shut down our pumps at midnight sometimes and the great decrease in pumpage has cut the coal and other bills way down.



### City Liable for Damages in Supplying Bad Water

St. Paul, Minn.—The Supreme Court has handed down a decision declaring that a city with its own water works system is liable for damages that citizens suffer by getting bad water. The case may mean damage suits aggregating millions of dollars for municipalities where typhoid epidemics can be traced to the water supply. The decision was given in the cases of Della Keever and Kate Flanagan, two Mankato women whose husbands died during the typhoid fever epidemic in that city in 1907 and who sued the city for \$5,000 damages each. The lower court ruled against them and the Supreme Court reversed the case. The attorneys for the defendant said in their argument before the court last spring if it was decided that the city was liable it would mean damage suits aggregating \$10,000,000 would be filed against the city. This, they said, would bankrupt the city and threaten its very existence, as the assessed valuation of property in Mankato is only \$4,000,000. The cases now go back to the Blue Earth County District Court for retrial, and it will be a question of fact for the jury to determine whether the husbands of the defendants got the typhoid through the water supply and whether the city was negligent. It was commonly understood that the typhoid epidemic was due to a leak from the sewer system into the water system, but it may be a difficult matter to prove in court that it was the city's fault.

### Sheboygan's Municipal Water Plant Is Paying

Sheboygan, Wis.—With revenues of \$81,664.70 for the year the Sheboygan Water Works plant, under the second year of municipal ownership will show a large increase in profits, it being estimated that the net receipts of the plant will exceed \$57,000. The gross revenues of the plant for the previous year are given at \$77,000, showing a gain of \$4,664 for 1910, the fiscal year for which closed June 30. Accompanying the report is a recommendation of the City Water Commission for a 10 per cent reduction in water rates to consumers.

### Water Company Treats City Liberally

Bridgeport, Conn.—At the solicitation of Mayor Buckingham, and as a New Year's gift to the city, the Bridgeport Hydraulic Company has released the municipality from any obligation to pay for water supply for the hydrants. The historic controversy over this contract is done away with without legal entanglements and the resultant cost of time, harmonious feelings and money. The announcement was made New Year's day, and is considered to be an excellent example of a corporation helping a city in its growth and general prosperity; also an example for other water supply corporations in other cities. The contract with the city has about 16 years more to run. During years past this has been a point of issue between individuals and the hydraulic company. For this purpose the sum of \$12,000 is appropriated annually by the city. By its action it is estimated that, even if the city has no growth and there is no increase in the number of hydrants, the company practically makes a present to the city of \$192,000, the total of 16 years' payment of \$12,000 annually. Surely the city and Mayor Buckingham are to be congratulated over this result. But there will be a notable increase both in the size of the city and the number of hydrants. Although impossible to predict the amount of increase, a conservative increase places the present at a total of \$250,000.

### New Filtering Plant Completed

Eugene, Ore.—When the university students returned last week they were able to secure pure water from the city mains. One of the largest modern filtering plants in the State has been recently completed. The type of filter, which is the same as that in use at Oregon City, has been approved by the university and State authorities. It will cost the city over \$60,000. Before this the city water was filtered, and repeated tests showed it to be pure, but the plant was a small one, and suspicion and caution have prompted many to boil the water or to use well water. It is thought that the latter is responsible for half a dozen cases of sickness in the last few weeks. It was noticed the sickness occurred immediately after a flood of the Willamette, and it is thought that the heavy rains and high water washed surface water into the wells and contaminated them.

## STREET LIGHTING AND POWER

### Ornamental Lighting Movement Spreading

Atlanta, Ga.—Since the turning on of the "Great White Way" on Peachtree, Whitehall and Mitchell, the beauty and value of this scheme of ornamental public lighting has gradually grown into the good graces of the people generally, and it is now generally recognized that Atlanta, in its main artery of retail traffic is the handsomest lighted city in the South. These ornamental lighting standards are being placed on Marietta to Cone and on Forsyth street from Marietta to Peachtree, on Broad street from Marietta to Peachtree and on Luckie from Forsyth to Peachtree. This second installation will probably be turned on about the first of February, thus adding another large portion of the downtown business streets to the system of lighting that so beautified the central thoroughfares. It has long been recognized as a logical and proper thing to do to light in this same manner Pryor street from Peachtree on through at least to the railroad and the intersecting streets between Peachtree and Pryor. The various people who have interests on Pryor street have in the last few days gotten together and have signed up practically all frontages, thus insuring the spread of the lights to Pryor street, and it is probable that other adjacent streets in the very near future will also be canvassed and added to this third installation. The property owners and merchants on Pryor street are very enthusiastic about this movement, as they have plainly seen the value of the lights to the street and how dark it is in comparison to the other streets thus lighted. Never before has Atlanta had the opportunity to note how truly "business follows the lights." It is generally conceded as a fair and proper move for the City Council to light and maintain the system on other downtown business streets and undoubtedly this will be the attitude of the Council when the recently canvassed blocks have been presented for their consideration.

### New Contract and Improved Lights

Defiance, O.—The ten-year contract between the Defiance Gas & Electric Company has been signed by President William T. Morris, of the Defiance Gas & Electric Company, and the Director of Public Service. This means the end of the much-discussed lighting problem and the poor light service, as the company will immediately begin the work of installing the new system of street lights.

The principal points in the contract are as follows:

It is for a period of ten years. Street lamps numbering between 83 and 100 are to be on the rate of \$70 per lamp per annum. The lamps are to be of modern inclosed type, the long burning series and produce a much better light than the present old style lamp. On the business part of Clinton street the company is to install six Boston flaming arc lamps, which give a much greater light than the ordinary arc lamp and are more expensive to install and more costly to operate. Electricity for commercial use is to be charged at the rate of 9 cents per kw-hour with a discount of one cent per kw-hour if the bill is paid by the tenth of the month. Gas is to be charged at the rate of \$1.35 a thousand, with a discount of 10 cents a thousand if the bill is paid by the tenth of the month. The city is to have the privilege of carrying the fire alarm wires on the poles of the company. The poles of the company are to be painted in accordance with instructions of the Director of Public Service.

### Want City to Pay for White Way

Des Moines, Ia.—The Commercial Club will make a big fight next year to compel the city to pay for the electricity used in the downtown electrolier street lighting system, according to Secretary Geis Botsford. "With the current paid for by the city the system would be extended to practically every business block in the city," Mr. Botsford said recently. "The city is not playing fair. A year ago it was intimated that after another year the city would pay for the current, but the commissioners seem to be making no plans to do so. Instead, the citizens are paying for the lighting of downtown streets as individuals. The city turns off its arc lights in the downtown districts until after midnight, when the electroliers go out."

### St. Maries Will Have Good Light

St. Maries, Idaho.—The citizens in the west end are having installed a new street lighting system which, when completed, will be the only one of its kind in the Northwest. The lights form an arch across Front avenue at each corner, with 150 four-candle power tungsten lamps and one huge arc light in the center.

### Power Plant in Connection with High Dam

St. Paul, Minn.—In reply to the criticism of G. W. Lewis, secretary of the Mississippi River Boulevard Association, anent the advisability of constructing the high dam for power purposes in which it is pointed out that in planning for the generation of electricity no provision has been made to pay for the installation of an auxiliary steam plant in case of low water, Mayor Keller declared the steam plant provision has been under consideration by the business corporation, comprising the officials of the Twin City and the university authorities, ever since the question of using the high dam for power purposes was first taken up. The Mayor said the engineering departments of the two cities and the dean of the school of engineering of the university had given the auxiliary power plant installation considerable investigation, and he believed a detailed estimate of this plan had been included in the general estimate of the expense which would have to be borne by all parties interested in the improvement.

### Gas Company Says It's Going to Quit

Cleveland, O.—The East Ohio Gas Company, recently denied a franchise giving it the right to increase the price of artificial gas, has taken the first step toward making good its threat to shut off the supply by notifying all the employees at artificial gas plants of their dismissal to take effect Jan. 17, 1911. Over 1000 men are affected.

### City Gets a Good Natural Gas Well

Iola, Kan.—Drillers for the Municipal Gas Department have brought in the best gas well in recent years on the Arnold lease in the west field. Other wells will be drilled in the vicinity of the new gasser in the near future.

## FIRE AND POLICE

### New Auto Apparatus Received

Augusta, Ga.—The new Webb auto chemical hose and ladder wagon, just received, has been named Thomas Barrett, Jr., in honor of the Mayor. The apparatus differs in some details of design from any other in the country. The ladder receptacles are made according to suggestions of Chief Reynolds and Chairman Kalbfleisch.

### Driving over Fire Hose to Be Stopped

Baton Rouge, La.—City Fire Chief Hugh Waddill announces that after Jan. 1 any person who drives over city fire hose will be promptly arrested and prosecuted before the city court. There have been a great many complaints from firemen over the way persons have been in the habit of driving over hose at fires. The weight of a carriage does serious damage to the hose. There is a city ordinance against driving over the hose, and the Fire Department officials say that the ordinance will be strictly enforced.

### Self Government for Police of Berkeley

Berkeley, Cal.—Chief of Police August Vollmer has announced that hereafter the men of the Police Department are to govern themselves, settle their petty differences by a jury of their peers and hear complaints made against them both by members of their own corps and the general public. In the latter cases the approval of the Chief and Commissioner of Public Health and Safety is required before the findings are regarded as final. Chief Vollmer has been considered as one of the most progressive police chiefs in the country, and the result of his experiment will be watched with interest. A year ago he established the golden rule policy. The soft non-fracturing club was adopted some time ago as the official weapon of patrolmen.

### Police Department Buys Bloodhounds

Chattanooga, Tenn.—The Chattanooga Police Department now owns two fine-looking bloodhounds, and from all reports their record is as good as their looks. The new hounds were received in the city last week and were at once turned over to Detectives Clark and Gibson, who will have charge of them. They came from Brushy Mountain State Prison, and have a record of making a number of good catches at the prison. The hounds are the property of the city, and will be used in cases of arson, housebreaking, larceny and all cases where work of this kind is needed.

### Water Supply Failed—Town Nearly Destroyed

Granville, N. Y.—The village of Granville was saved from destruction by fire Jan. 3, by a sudden shift of the wind after the flames had consumed ten blocks of business buildings, three hotels and seven residences. The loss was \$300,000. There were no casualties. The fire had free sway owing to the failure of the water supply. Long lines of hose were strung to the Pawlet River, but the stream which was pumped was too feeble to be of much service. The fire started in a clothing store. Its cause has not been ascertained. Granville has a population of about 5000.

### Fire Chief Advises Against Special Privileges

Milwaukee, Wis.—Fire Chief Clancy has advised the Council Committee on Public Buildings and Grounds not to grant any special privileges to vacate or build over alleys in the downtown district on account of the danger through fires. "I am strongly against closing up alleys or building over them with nothing but a driveway for the reason that it would give the Fire Department no opportunity to fight fires," he said. "No ladders could be erected and the flames would be given an added impetus to do damage. We must not only fight fires, but also prevent them."

### New Fire Chief for Auto Apparatus

Minneapolis, Minn.—Charles W. Ringer, who has recently been appointed Chief Engineer, is reported to have said that no more horse-drawn fire apparatus will be purchased or ordered built, if he can direct it. He is in favor of motor-propelled vehicles. "It is time Minneapolis had apparatus on automobile trucks," he said, "and I am going to start construction of a motor-propelled combination hose and chemical wagon in the repair shops as soon as I can."

### Fire Chief to Investigate

Elkhart, Ind.—Mayor Chester has announced that Fire Chief Ulrich would at once begin a thorough investigation of conditions in all business buildings and other large structures, especially the basements. The object is two-fold—first, to order correction of improper conditions and, second, to acquaint the firemen with the "lay of the land" in order to be better able to meet emergencies. The Chief will be accompanied by different firemen at different times.

### Steam Engine and Paid Department Are in Service

Navarre, O.—The Navarre Fire Department has disbanded. It held its final meeting last week, read and approved the minutes, transacted some business and adjourned sine die. Hereafter the protection of the village will rest with a department consisting of 15 men who will work under the direction of a chief, an assistant chief and an engineer. A new steam engine has been purchased and the old hand engine serves no other purpose than to show posterity with what apparatus their ancestors worked. The City Council, which purchased the new engine, has assumed supervision of the new Fire Department, which is expected to do wonders in the future. Navarre residents say that they will never work more faithfully or more loyally than did the old company with the hand engine. That, they say, would be impossible.

### Fire College for City

New York, N. Y.—For three months or more Commissioner Rhinelanders Waldo and Chief E. F. Croker have been perfecting a project which Hugh Bonner often talked about—the establishment of a "Fire College," so that the lore of fire fighting, gained by individuals in years of fighting thousands of fires, might be preserved instead of dying with the individual. Practical work in machine shops, lectures on explosives by well-known chemists, talks and demonstrations by electrical engineers on the new problems offered by the high voltage electrified railroads, the handling of blazes in high buildings, a better understanding of the high pressure system, and very practical lessons in the scaling of walls, jumping into life nets, and the handling of all kinds of tools used by firemen, all these subjects and many more of a practical nature will be taken up and drilled into the force by the fire college. The fire college is not intended to supplant the regular drill school, but is inaugurated for the purpose of carrying on higher work.

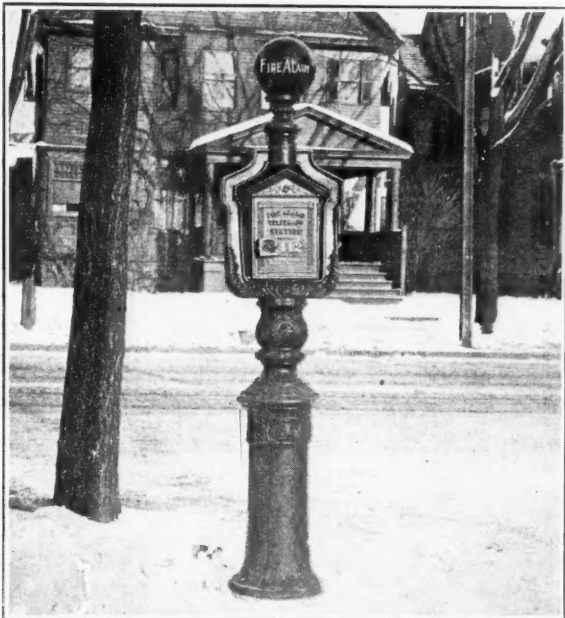


### New Fire Hose, All Good

New York, N. Y.—Commissioner Waldo has completed the purchase of 60,000 feet of fire hose, of which two-thirds will be used in Manhattan and the other third in Brooklyn and Queens. A new system was used in testing this hose. Every link was tested to make sure that it was up to its contract requirement of resisting pressure of 400 pounds to the square inch. The average strength of the new hose was found to resist 600 pounds pressure. The date of purchase is marked on a piece of red rubber at the coupling of each link. Under the former system only selected pieces of hose were tested.

### Fire Alarm Boxes Provided with Lights

Rochester, N. Y.—In order to make the fire alarm boxes clearly recognizable at night they have been equipped with an incandescent lamp enclosed in an outer red globe. No change was made in the fire-alarm posts, a special fitting at the top being equipped with a shade holder and a 40-watt, clear-bulb, tungsten lamp over which is a red globe with the words "Fire Alarm" etched in it. The lighting circuit to the post is run underground either from the underground system or from a pole line, the leads in the latter case passing down the pole in conduit to the fire alarm post. Where the lighting circuits are on the opposite side of the street



Courtesy Electrical World

ELECTRICALLY LIGHTED FIRE-ALARM BOX

the circuit is placed underground in an iron pipe, a single conductor being used for one lead and the pipe itself for the other lead. In this way the extra cost of a double conductor is saved and the small transformers—for all the lamps receive energy from an overhead or underground 16-volt, 40-watt transformer connected to the constant-current arc lighting circuits—are effectually grounded. The small transformers are in most cases set in the manholes adjacent to the fire-alarm posts. The invention is the outcome of an incident that occurred some time ago, when a fire made considerable progress because a citizen could not find a box at night. It is the joint work of City Engineer Fisher and officers of the Rochester Rail and Light Co.

### Schenectady's Annual Fire Record

Schenectady, N. Y.—According to the annual report of Chief Henry R. Yates, of the Fire Department, there were 280 fires during the year, with a total loss of \$62,307.01, as against 250 fires, with a total loss of \$152,086.71 in 1909. On the buildings in which there were fires during the year the insurance amounted to \$419,349.94, and their contents were insured for \$126,760, a total insurance of \$546,109.94. The insurance paid on the buildings was \$30,639.41 and on the contents \$26,882.60, with an estimated uninsured loss of \$4,685. These latter amounts added together are taken to represent the total fire loss of the year, \$62,307.01.

## GOVERNMENT AND FINANCE

### Enjoyed Being Mayor

Detroit, Mich.—Mayor Philip H. Breitmeyer, who retired from office on Jan. 1, was asked in what light he now viewed his policy of making his office a universal social club during his two-year incumbency, and how much it had cost him. The Mayor's chief object seems to have been to be a jolly good fellow to everybody. He has given banquets and other entertainments galore, and the invitations to the same have been sent out with a free hand. The Mayor said he had kept no account whatever of what it had cost him, but when different figures were suggested to him he admitted that it might have been in the neighborhood of \$40,000. "Do you think the fun was worth the price?" he was asked. "Young man," he replied, "I would have paid just three times as much for the honor of being Mayor of a city like Detroit. It has been a great experience. These have been the two happiest years of my life."

### New Municipal Government Bill in Indiana

Indianapolis, Ind.—State Representative Adolph Roggan, of Allen County, has prepared a bill which he will introduce into the General Assembly, giving Indiana cities of the first, second and third classes the right to change their form of city government by abolishing old and creating new offices and prescribing the method of procedure. According to the draft of the bill a petition signed by 25 per cent of the total vote cast at the last city election asking a change in city government and setting forth the proposed change, shall be filed with the Mayor or City Clerk. An election must then be called to be held the first Tuesday after the first Monday in the month of November following. The Roggan bill offers an avenue for the substitution of the commission form of government for the present form in any Indiana cities voting the change, although the commission form of government is not mentioned in the proposed bill.

### Busy Year for Public Service Commission

New York, N. Y.—At the close of business for 1910 the Public Service Commission, Second District, had presented to it for action 2071 different matters. These included 1438 complaints which were handled informally by the Commission and settled without the necessity of formal orders, 371 formal complaints and 262 applications from various corporations for authorization by the commission. During the year the Commission disposed of and closed 1670 of the matters presented. In addition to daily sessions and consideration of disposition of cases, the Commission held 554 hearings covering a period of 196 days. During the year the Commission authorized capitalization to the amount of \$151,048,108. In 1909 there was authorized \$142,855,035.85; in 1908, \$92,253,900; for the last six months of 1907, \$17,730,745.90, a total for the 3½ years of \$403,887,789.34.

### Springfield, Ill., Votes for Commission

Springfield, Ill.—Springfield, the first city of Illinois to hold an election under the commission form of government statute, adopted the commission plan by a majority of 790. The people turned out despite a blizzard and voted for the new plan. The vote was 3790 for and 3000 against.

### Spokane Adopts Commission Form

Spokane, Wash.—By a majority of 2237 out of a total of 10,463 votes, the commission plan charter, drawn by a committee of fifteen freeholders was accepted at the election of Dec. 28. The following will be the immediate effects of the new charter:

Any official filling an elective city office may be recalled. Any new ordinance may be introduced by initiative petition and election. Referendum may be applied to any ordinance except emergency ordinances, ordinances ordering local improvements and those ordering the annual tax levy and appropriations. Any provision of the new charter may be amended by petition and election. Succeeding elections of city officials will be under the new commission system, the next general election to be on March 7.

The other powers of the charter—those which directly affect the administration by the commission—will go into effect when the first commission has been elected and has qualified.

### Waldo Urges Bureau for Prevention of Fire

New York, N. Y.—Fire Commissioner Rhinelander Waldo recently testified as follows before a legislative committee on the subject of fire prevention:

The question of the Fire Department divides itself into two branches, the extinguishing of a fire and the prevention of a fire. In my opinion, the prevention of fire is the subject in which greatest development for the future lies. The extinguishment of fire is now being handled extremely efficiently by the New York Fire Department. The fire prevention is, however, as I said before, a subject which I believe is most susceptible to improvement. To-day we have many devices of fire prevention. We have the automatic sprinkler system. We have the perforated pipe systems; we have the standpipes and the introduction of fire extinguishers and automatic fire alarm telegraphs giving notice of a fire at its start. I think the Fire Department should have some legislation which would make this bureau of fire prevention a separate one from the bureau of fire extinction, and it should have authority to compel the introduction of these devices in premises where the business carried on is of a hazardous character, such as in workshops and storehouses and department stores. I think if the Legislature would pass some act which would give the Department authority to do that it would greatly limit the loss. Also another subject which I think you ought to take up is the one preventing the fire insurance companies from overinsuring. A man can to-day get out an insurance without having his property adequately inventoried and thereby give him an incentive to incendiarism. I think it ought to be made a penal offense to insure any property unless a careful inventory has been taken by the insurance company. There is no question but what a large percentage of all fires here is of an incendiary nature and are incurred by the laxity of the insurance companies in inventorying.

### Police Will Be Provided with Rifles.

Pittsburg, Pa.—Chagrined by the escape of a score of burglars during the last month for lack of long-range weapons, William Bennett, Chief of Police of Braddock, a suburb, has ordered ten regulation Springfield rifles. Councilmen argued it might not be legal for policemen to carry such firearms, whereupon Chief Bennett, a Civil War veteran, wrote Secretary Knox at Washington for an opinion. The answer was satisfactory and the Council approved the bill.

## STREET CLEANING AND REFUSE DISPOSAL

### Metal Garbage Cans and Trolley Loading Stations Recommended

Baltimore, Md.—Declaring that rats are overrunning many sections of the city, Col. Joseph L. Wickes, Commissioner of Street Cleaning, in his annual report to the Mayor will make another earnest plea for the passage of the ordinance requiring all householders to use covered metal receptacles for their garbage. According to Colonel Wickes, the rodents are becoming more and more numerous in Baltimore and bolder in their devastations. He attributes their growth and activities to the contributory negligence of householders who expose their garbage, and thus provide food for rats. Colonel Wickes will also recommend again the reorganization of the system of collecting and disposing of non-perishable waste, such as ashes and rubbish. He will recommend the establishment of the system used in Brooklyn, where central collection points are provided from which the waste is carried out of the city on trolley cars.

### Preventive Measures to Aid in Street Cleaning

Cincinnati, O.—An active campaign toward keeping the streets clean was launched at a conference between Mayor Schwab and Street Cleaning Superintendent Maag. The attention of the officials was called by the Woman's Club, which made many valuable suggestions as to how the matter could be remedied, and to the practice of littering streets by sweeping dirt out of stores onto the sidewalks.

### Will Continue to Measure Snow Wagons

New York, N. Y.—Commissioner of Weights and Measures Walsh and Leo Arnstein, secretary of the Borough of Manhattan, have devised a plan for continuing the measuring and sealing by the Bureau of all wagons used in snow removal. During the recent storm Mr. Walsh found that the extent of the work was such that it taxed the capacity of the Bureau and kept his inspectors from attending to their regular duties. The failure of the inspectors to prevent delay in handling the wagons was also assigned by Street Cleaning Commissioner Edwards and others for the almost unprecedented delay in getting the streets of the city cleaned up. Mr. Walsh and Mr. Arnstein have decided to draft a large number of men from other Departments and Bureaus, principally from the offices of the Commissioner of Accounts and Borough President McAneny, to do this work.

## RAPID TRANSIT

### Impossible to Supply Seats Even in Non-Rush Hours

New York, N. Y.—With the statement that it is impossible to provide seats for all passengers in the subways in the non-rush hours, Theodore P. Shonts, president of the Interborough Company, has given notice to the Public Service Commission that its orders could not be observed. Mr. Shonts asked for a new hearing on the order increasing service, but at the same time states that the company has no intention of carrying out the improvements suggested. Mr. Shonts suggests that if the Commission persists in demanding better service in the non-rush hours the question of the legality of such orders will be taken to the courts. The Commission granted the request for a new hearing and set the date for January 12, before John E. Eustis. "The terms of the Commission's orders are not accepted by this company," Mr. Shonts wrote. "The terms are impossible of performance. The order makes no provision for temporary prevention from complying with its terms by accident or other controlling emergency. The terms are unjust and unreasonable. The order deprives this company of the right of ownership and management and protection of its property and the property of others committed to its care."

### May Abolish Three-Cent Fare

Cleveland, O.—Wall Street threatens to put an end to Cleveland's enjoyment of a three-cent street car fare. This rate has been in effect for over a year. The service has been good, but Wall Street has been asked to furnish funds for certain improvements the Cleveland Railway Company desires to make, and the money kings insist that the fare be raised before they put up the cash. Cleveland Railway Company officials will open negotiations this week with Mayor Baehr and other authorities to have the Taylor franchise amended to meet suggestions of N. W. Harris & Co., of New York, who offer to finance the property under certain conditions. The amendments suggested are of such a nature as to make certain an increase in the rate of fare. "Never mind. There will be no increase in the rate of fare," was Mayor Baehr's only comment on the situation.

## MISCELLANEOUS

### Dock Commissioner Plans System of Open Piers

New York, N. Y.—Dock Commissioner Calvin Tompkins is slowly working out a plan for the reorganization of the pier system of the city, by which the piers will not all be turned over to steamship companies and private corporations for their exclusive use at nominal rentals, but many of them will be held as "open piers," on which privileges will be let to various business concerns. This will relieve the lack of pier facilities for the small business man, and in the course of time will substantially add to the city revenues.

### Close First Year of Separate Park Department

South Bend, Ind.—Maintaining the park system of South Bend during 1910, the first year it became a department separate from the Board of Public Works, cost the city \$22,851.59. Of this amount \$5,308.24 was spent for salaries, while \$8,095.19 was paid out for labor in the parks. The park system was separated from the Board of Public Works the first of last year when Fred C. Winkler, Simon Greenebaum, Richard Elbel and Col. George M. Studebaker were named Park Commissioners. With the death of Mr. Winkler, who was president of the Board, Mr. Elbel became head of the department, while Dr. E. J. Lent was appointed to fill out the unexpired term of the deceased member. Herman Beyer was retained as superintendent of the park system. Other expenditures in the department for the year shown in the annual report compiled by Clerk A. P. Perley, follow: Miscellaneous articles, \$1,752.17; tools, \$268.91; seats and buildings, \$902.02; lights, \$70.07; plants and shrubs, \$587.57; rinks, \$776.02; roads and paths, \$321.16; concerts, \$1,192.10; fuel, \$100.90; repairs, \$271.34; plumbing, \$6.10, and zoo expenses, \$785.80. Donations for the purchase of land during the year amounted to \$785.80.



### Small Measures Generally Short from Wear

Massillon, O.—Sealer Martin, in a report, said that during the six months he had been in office he had found 216 scales correct and 83 needing adjustment. He said he found 88 correct half-bushel, peck, half-peck and quarter-peck measures, but all quart and pint dry measures short. He said there was no intention on the part of the dealers to defraud their customers, but the weights had become short through usage and wear. The testing equipment, he said, had cost \$198.36; incidentals, \$11.50; office supplies, \$8.50; salary, \$150.

### Co-operative Town to Be Established

Muskogee, Okla.—To establish a town on a co-operative basis, with all of the conveniences for a city and in close proximity to Muskogee, is the hope and ambition of a number of working men in this city, and the plan has crystallized to such an extent that articles of incorporation will soon be filed. The scheme is to secure sufficient land to enable 100 men to own conveniently sized lots on which to build a home. The homes will radiate from a business section laid off with a view to having enterprises which would supply the entire town. A co-operative store, a farmers' union warehouse, a gin, cannery and creamery are also provided for, as well as sites for a central temple or convention hall, a theatre, school house, park and green house and nursery. Altruria will probably be the name of the town.

### Cannot Prosecute Dealer for Sale of Short Measure Goods

Grand Rapids, Mich.—That the public of this city are being systematically defrauded in the sale of matches and clothes lines through no fault of the retail dealers was discovered to-day by City Sealer Byrne, who, after a consultation with Assistant City Attorney Ferguson, was forced to acknowledge that the retailer was not responsible under the law for the practice and cannot be prosecuted. City Sealer Byrne's attention was attracted to the practice by a complaint which reached him last week. A woman in the south end of the city had two clothes line poles set in her yard a hundred feet apart and went to her retailer to procure a line. The retailer sold her two packages of line which was represented by the label to contain 50 feet of line per package. She purchased two and went home to find that the two packages lacked 16 feet of reaching from pole to pole. She reported the matter to City Sealer Byrne and he started an investigation which resulted in his finding that every package of this brand of clothes line measured only from 42 to 43 feet in length. He ordered the retailer to stop the sale, but the merchant pleaded innocent with manifest justice and Assistant City Attorney Ferguson upheld him in his innocence. Then a complaint about matches was received and the City Sealer bought several packages of matches and in one on which the label represented the box to contain 500 matches he found only 250 matches and this count was substantially borne out by a count of several boxes. Assistant City Attorney Ferguson says the retailer, while he can be prohibited from selling these short measure goods cannot be prosecuted because he is not primarily responsible for the contents of the package and buys them in good faith, relying on the representation of the package label, and sells them with the same good intent. The city ordinance or State law cannot reach the manufacturer, and the only hope for the people Mr. Ferguson sees is the enactment of a National Sealer of Weights and Measures to operate under a national law that will reach every manufacturer, and this coupled with a uniform system and State laws applying to weights and measures.

### Accepts \$500,000 for Fountain

Detroit, Mich.—The Detroit City Council has voted to accept the \$500,000 set aside by the will of James Scott, long a picturesque figure of this city, to be used in building a memorial fountain and life-sized statue of him in Belle Isle Park. For more than a month the clergy and various citizens and organizations fought against accepting the gift because they considered its giver not the proper person to be remembered by any public object, even if he left the money for it. The clause in the will setting aside the half million dollars for the memorial has been dubbed "Jim Scott's last joke."

### Topeka Will Operate Amusement Park

Topeka, Kan.—Topeka will have a new amusement park next summer—and it will be under municipal control. The Board of City Commissioners have decided to make Garfield Park into an "electric white city" and the City Clerk has been asked to advertise for bids from different amusement firms for the purpose of carrying out the plans. Boating, band concerts, figure 8, merry-go-rounds—and concessions and attractions of all kinds have been placed on the list of required amusements. Everything of an entertaining nature which is included in an up-to-date metropolitan amusement park will be sought for Garfield, and the gates must be opened for the grand opening early in the summer. It is believed by the city officials that a park of this kind would be greatly appreciated as well as patronized by the people of the city. It is also figured that the royalties and the revenue to be obtained from such a park will be a profitable undertaking to the city.

### Will Muzzle Dogs for Year

Boone, Ia.—Mayor Wilder has ordered that all dogs in the city be muzzled for a period of one year. This unusual order is the result of the death from rabies of a four-year-old child and the injury of nearly a dozen citizens by being bitten by dogs within a few months. Mayor Wilder is considering the advisability of ordering all dogs in the city killed.

### Want Municipal Telephone System

Thief River Falls, Minn.—The Tristate Telephone Company, which holds a franchise for a telephone system in this city and which has been running the local exchange for two years has been prohibited by the city authorities from setting poles in the alleys of the city. There has been more or less dispute between the company and the Council for some time, the city claiming that the franchise is not legal and the company claiming it is. When the company sought to string wires or set poles they met with opposition and it is likely that the trouble will have to be settled in the courts. There is a strong sentiment in the city in favor of a municipal ownership of the system, as the city owns its own electric plant and makes it pay handsome returns annually. The water works are also city owned and in the near future the city may install a telephone system. This is the chief reason why no further extensions of the present lines will be permitted by the authorities.

### Washington Streets Flushed with Hose

Washington, D. C.—Following the partial melting of snow the streets were in unusually bad condition. Seven gangs of six men each were put to work flushing the streets. Wagons borrowed from the Water Department were used to carry the hose from hydrant to hydrant. The work was so effective that in two or three days walking and automobiling had resumed their normal state.

### For City Aviation Landings

Modesto, Cal.—Visions of the days when men shall fly as they now ride in street cars are called up by a provision in the new charter adopted by the citizens of Modesto. Power is given to the city to construct and operate aviation landings as a municipal enterprise, and it is said that the clause is wide enough to enable the city fathers to conduct aerial contests and to build aviation parks.

### Mayor Would Have Municipal Laundry

Petoskey, Mich.—As a means of increasing the popularity of Petoskey and alleviating the troubles of housewives, Mayor Reycraft advised the Council to consider the project of building a municipal laundry. As a result of the recent installation of new machinery in the city light plant, more power is generated than is needed, and the Mayor suggested that it be put to this use. Water could be heated by means of electricity, and a great saving of time and labor to private citizens would result.

### State to Share in Expense of Grade Crossing Changes

Trenton, N. J.—The Board of Public Utility Commissioners has recommended in its annual report to the Governor that a law be passed under which the State, as well as the municipalities and railroads affected, shall share the burden of expense of abolishing grade crossings.

## LEGAL NEWS

### A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

#### Flooding Land—Measure of Damages

*Ewing et ux. vs. City of Louisville.*—Where a municipal corporation establishes an original grade on a street it is not liable for injuries thereby to adjacent property. Where the city established an alleyway without a culvert or drain, which caused surface water to back up on plaintiff's premises, it is liable under the direct provisions of the constitution, which allows compensation for property injured or destroyed, as well as that taken, for a public use. When a case is reversed, instructions on retrial should conform to the view of the law expressed above. Where water is turned on plaintiff's premises, the measure of damages if the nuisance is permanent is the depreciation in the market value of the property and one recovery must suffice; but if the injury is temporary, it is the reasonable cost of repairing and the depreciation of the rental value of the property during the time sued for or the damage to its use. In an action against a city for constructing an alleyway that caused water to back up on plaintiff's land, the city cannot show to mitigate damages that the alley renders the property more convenient and valuable.—Court of Appeals of Kentucky, 131 S. W. R., 1016.

#### Contractor's Bond—Material Man

*Gate City Lumber Company vs. City of Montesano et al.*—Laws 1909 provide that any municipal council contracting for the performance of any public work shall require a bond of the contractor for the payment of all material men and just debts incurred by the contractor. Section 2 makes the city itself liable on failure to take such a bond. An action was brought against the contractor, its receiver and the municipality for which the contract work was done to recover the contract price for material furnished to the contractor. It appeared that a part of the material furnished was neither used in the work nor delivered upon the ground to be used therein. Held, that neither as a material man nor as one to whom a just debt had been incurred in the performance of contract work could plaintiff recover of the city for material not used or delivered on the ground for use.—Supreme Court of Washington, 111 P. R., 799.

#### Street Improvement—Delays—Waiver

*Cushing vs. Bullock et al.*—Invalidity of tax bills for a street improvement on account of the contractor's failure to complete the work within 90 days, as required by his contract, was not waived by an owner requesting the contractor within such period to complete the work according to the contract, and agreeing that if the work should be completed to the satisfaction of the City Engineer "as aforesaid" that the owner would not contest the tax bills, though the work was actually completed within a six-months extension of time granted by the city.—Kansas City Court of Appeals, Missouri, 131 S. W. R., 713.

#### Public Improvements—Proceedings—Objections

*Johnson vs. City of Indianapolis et al.*—An owner of a part of agricultural lands annexed to a city by ordinance, adopted as authorized by acts 1905, who feels aggrieved by the action may, as authorized by section 243, appeal to the Circuit or Superior Court, and where he fails to avail himself of such remedies he cannot in proceedings to construct a sewer so as to create a lien on the land in the territory annexed insist that the council did not have sufficient reason for annexing the territory.

Under acts 1905 authorizing the Board of Public Works to hear persons interested or whose property will be affected by a proposed improvement on the question of special benefits, etc., the board may exercise its own honest judgment, and it need not decide the question of benefits on the weight of the evidence formally presented at the preliminary hearing.—Supreme Court of Indiana, 93 N. E. R., 17.

#### Change of Grade—Paving

*Lawrence vs. City of Corning.*—Corning City Charter provides that the grade of a street shall not be changed, except on petition of resident owners of more than one-half the lineal feet adjacent, nor unless compensation to persons damaged be made on agreement or by award of Commissioners. Section 113 provides for "paving or macadamizing" streets on petition of adjacent owners. On a petition for "paving" and "grading" of a street, no proceedings were taken under Section 112 to ascertain the compensation; but a radical change was made in paving the street, raising the roadbed several feet. Held, that this could not be regarded merely as grading incidental to paving, and the city was liable as for a change of grade. Under Corning City Charter, providing that, when the grade of a street "has been established" by the Common Council and the street graded accordingly, no change shall be made without compensating persons damaged, it is not necessary that the establishment of the grade must have been made by some formal action of the Common Council.—Supreme Court of New York, 125 N. Y. S., 682.

#### Municipal Elections—Disfranchisement of Negroes

*Anderson vs. Myers et al., Howard vs. Same, Brown vs. Same.*—Acts of Maryland, 1908, prescribing the qualifications of voters at municipal elections in the city of Annapolis, declares that the register shall register all male citizens of 21 years or over having resided in the city for one year, not convicted of a crime and assessed on the city tax books for at least \$500, also all duly naturalized citizens of 21 years of age, all citizens who, prior to January 1, 1868, were entitled to vote in Maryland or any other State at a State election, and all lawful male descendants of any person who, prior to January 1, 1868, was entitled to vote in Maryland or in any other State of the United States at a State election, provided that no person not coming within one of the enumerated classes should be registered as a legal voter in the city or be qualified to vote at any municipal election held therein. Held that, though such act did not provide a race or color disqualification in terms, it nevertheless effectually disfranchised and discriminated against negroes, and was therefore unconstitutional as violating Const. U. S. Amend. 15.—United States Circuit Court, 182 F. R., 233.

#### Contractor's Bond—Materials

*E. I. DuPont De Nemours Powder Company vs. Culgin-Pace Contracting Company et al.*—Statutes 1904, entitling labor and material claimants to the benefit of a municipal contractor's bond, treats the bond as security for the payment of the contractor's debts, where mechanics' liens would attach if the owner were a private person, and gives a claimant an enforceable interest as if the bond were a fund for his benefit; and, if the penal sum is insufficient to pay all sums, they share in proportion to the amount due to each. One furnishing material to a municipal water works contractor has no right of action against the city on account of his claim. A municipal water works contractor's bond to secure payment for "material" under Statutes 1904 covers dynamite used in the work and fuses used to explode it.—Supreme Judicial Court of Massachusetts, 92 N. E. R., 1023.

#### Defective Sidewalk—Motive—Sufficiency

*Gregorius vs. City of Corning.*—Notice to a Sidewalk Inspector and to one member of the Board of Public Works of a defective sidewalk was not notice to the Mayor within Laws 1905, exempting a city from liability for injury caused by defective ways, unless notice of the unsafe condition has been given to the Mayor or the City Clerk a reasonable time previously.—Supreme Court of New York, 125 N. Y. S., 534.

#### Defective Streets—Loose Grating

*Clark vs. City of Lancaster.*—In an action by plaintiff to recover for injuries received from stepping on a loose grate over a gutter in a street, where two witnesses apparently contradict each other as to whether the grate was visibly loose and out of place, and it is not clear whether plaintiff could have seen it, a nonsuit was improperly entered.—Supreme Court of Pennsylvania, 78 A. R., 87.



## MUNICIPAL APPLIANCES

### Eureka Tape Splice

THE Eureka tape splice is a metallic sleeve for repairing tapes, which is sold by the Engineering Agency, Inc., Mo-nadnock Block, Chicago, Ill. It consists of thin sheet metal folded in the shape of a sleeve and coated with a combination of solder and flux so sensitive it will make a perfect adhesion with the tape by the heat of one common match.

The use of rivets and soldering irons is avoided and there are no ugly knots on the tape. The repair can be made in the field in one minute and look as neat as if done by a jeweler and as strong as a blacksmith could do it. One dozen of these sleeves weigh less than half an ounce and occupy too little space to be noticed. They are furnished in a small round wooden box with screw cover. They are made in sizes to fit any tape, and are specially adapted for light pocket tapes, as it does not interfere in coiling in the case.

The directions for using are as follows:

Clean the broken ends of the tape with a knife or sand paper; insert the broken ends in the sleeve; hammer the sleeve slightly so it closes well down on the tape; hold a lighted match under the sleeve while it burns itself out. Let it cool and do not move it while it is cooling.

### Rectifiers Charging Batteries of Fire Alarm System

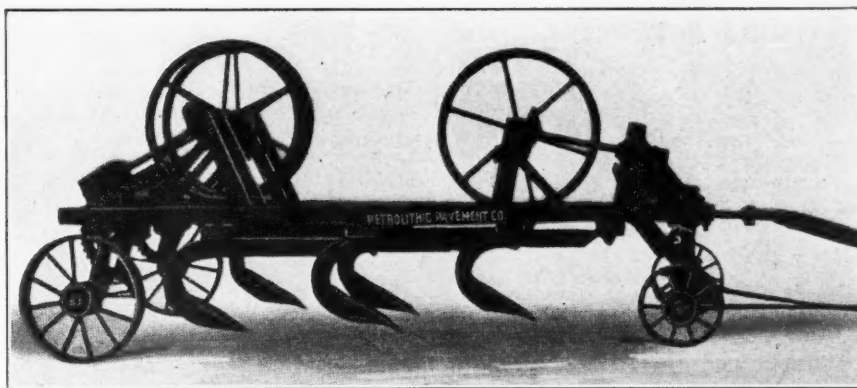
THE mercury arc rectifier shown in the illustration has been installed for charging the storage batteries which operate the fire alarm system of the city of Sandusky, Ohio. The battery consists of four sets of 15 cells each, chloride accumulator, type CT, and with the present system 50 fire alarm boxes can be pulled at once.

Previous to the installation of the rectifier a gravity battery consisting of 108 cells operated the fire alarm system. The new installation is said to effect a saving of \$300 per year as the expense of cell renewals, which, when gravity batteries were used, was a large item of expense. The first cost of the new equipment, including rectifier, battery and distributing board installed complete was \$589, while the cost of power for its operation is about \$1.40 per

month at a 10-cent per kilowatt-hour rate.

This equipment is operating very satisfactorily and during the six months that it has been in operation absolutely no trouble of any kind has been experienced with it.

The rectifier panel was furnished by the General Electric Company, Schenectady, N. Y.



HEAVY GANG PLOW FOR ROOTING OR SCARIFYING

### Gang Road Rooter

THE Petrolithic gang road rooter is a plow first developed for their own special work by the Petrolithic Pavement Co., 336 Pacific Electric Building, Los Angeles, Cal., but adapted also for other road uses, such as scarifying macadam or other roads. The plows can be raised and lowered quickly and easily by hand wheels, worm and sector. The rooter is of steel construction wherever possible and weighs 3100 pounds. It is claimed to break anything plowable 16 inches deep or as much less as is desired, 5 feet wide, and to stand up under the hardest work behind traction engine or heavy roller. An ordinary roller pulls it 8 or 9 inches deep in hard material. The front truck cuts under so that it turns in a narrow space.

### Cork Flooring for Engine Houses

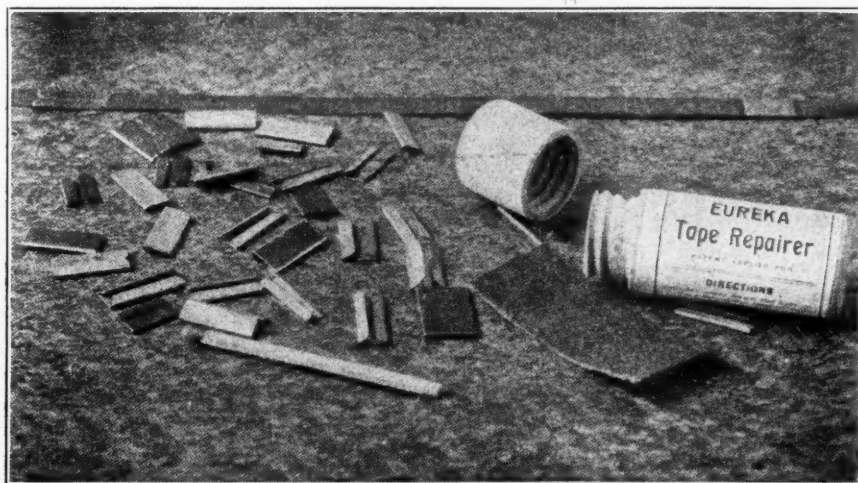
A FLOORING material composed of chips of cork bound together into a brick by means of an asphalt binding material is made by the Armstrong Cork Company, Beaver Falls, Pa. The

headquarters of the Beaver Falls Fire Department has been paved with this material, and it is reported to be giving good satisfaction; in fact, it is said to be a great improvement on the wooden blocks, cement and artificial stone floors at present in use. The danger of slipping, about which complaint is made in regard to hardwood floors, is avoided, as the cork bricks give a foothold approaching that of rubber. The cork bricks, in the instance cited, were laid on top of a hardwood floor, but they can just as well be laid over other material. This

new composite flooring proves easy on the horses' feet, whether in starting out with the apparatus or standing in their stalls. The floor is water-tight, because the asphalt makes the blocks impervious and the joints between them are rendered tight with asphalt. The noiseless nature of the material is a notable feature. In the stalls the blocks were laid on a concrete foundation with a sand cushion. The stall floor is said to be absolutely odorless after washing once a day. The horses used by this department weigh 1500 pounds each, and the wagon weighs 6200 pounds, so the floor which has been in constant use for six months and shows no signs of wear has been subjected to at least ordinary use.

### Sanitary Stall for Fire Engine Houses

A SANITARY stall which is adapted for use in fire engine houses, police patrol stations, as well as for general purposes, is made under patents by W. W.

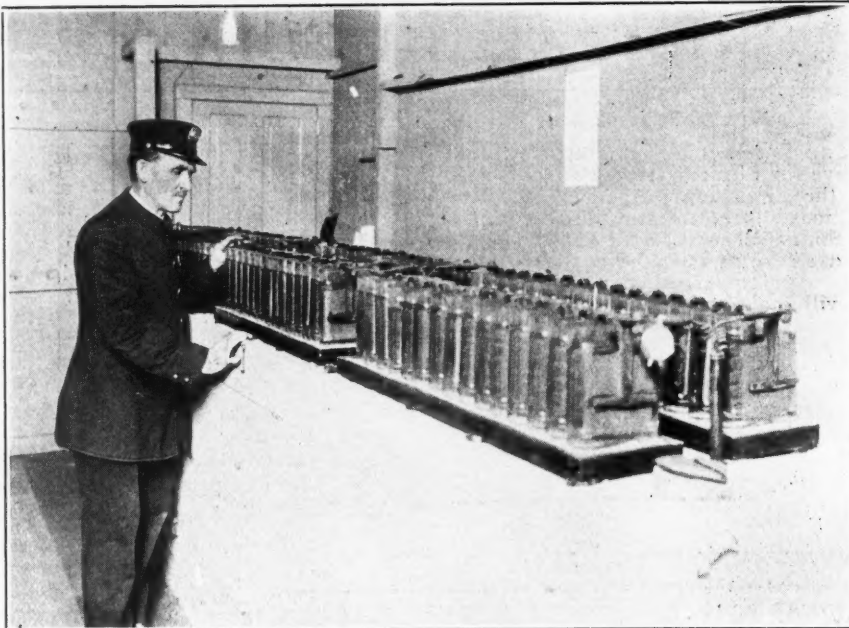


SIMPLE TAPE REPAIRING SLEEVE

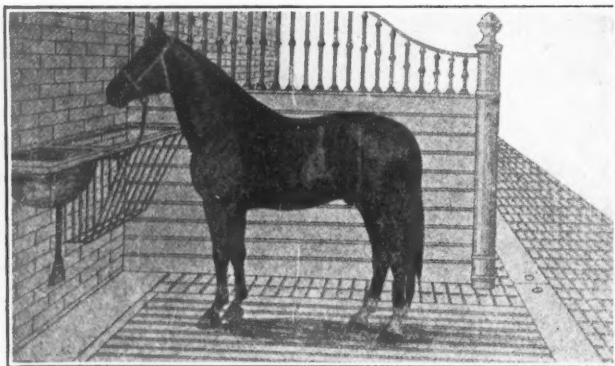


RECTIFIER AND SWITCHBOARD, FIRE ALARM SYSTEM

Schouler, 45 Clinton street, Newark, N. J. The stall has been used by fire and other city departments in the house of the inventor and neighboring cities, and is approved by them as combining sanitary qualities with conditions promoting the comfort of the horses. The stall consists substantially of a flooring of wooden slats permitting drainage, on which the horse stands and a foundation of cement. The accompanying illustration represents the new and improved slat floor for horses, the slats being adjustable, may be taken up and replaced with very little labor. Having an open space between each slat, unobstructed by bolts, etc., they may be readily cleaned by a hook, leaving the passage free for the water to run to the gutter. This system of stall floors is designed especially where concrete foundations or artificial stone is used, and the manner in which they are applied leaves only the artificial stone and iron in the stall when the slats are removed. The portion occupied by the slats is 7 x 3 feet, with the artificial stone brought up on a level with the top of the slats in front and on each side, where a horse seldom, if ever, puts his feet.



STORAGE BATTERY, SANDUSKY, O., FIRE ALARM SYSTEM



CEMENT STALL WITH WOODEN FLOORING FOR HORSE TO STAND ON

#### New Monahan Trench Machine

THE new Monahan trench machine, which is being placed on the market by the Marsh Company, Old Colony Building, Chicago, is claimed to be suitable for all trenching purposes and its parts are designed of special strength in order to avoid the breakages which so often interrupt the operations of ditch-digging excavators. The excavator is of the chain, belt and bucket type, and delivers the excavated material onto a conveyor which throws it up on the side of the ditch. The links of the chain of the excavator are of special Gropenhaus steel, the cutters are manganese steel and the cutter holders are crucible steel. These cutters are so arranged that they can be taken off and sharpened by the removal of a cotter pin. All gears and pinions are of steel. The buckets are all one piece 1 x 6-inch bar steel. The buckets are loose and fly away from the chain at both ends of the boom and have a positive cleaner. There are no backs on the buckets and they deliver the dirt to the conveyor close to the ground.

The conveyor is made in three parts and the delivery can be changed to either side of the machine at the will of the operator. A backfiller can be attached to the machine so that the dirt can be delivered back to the truck or loaded in a wagon on either side.

The wheels are on the inside of the frame, the back ones being 30 inches of

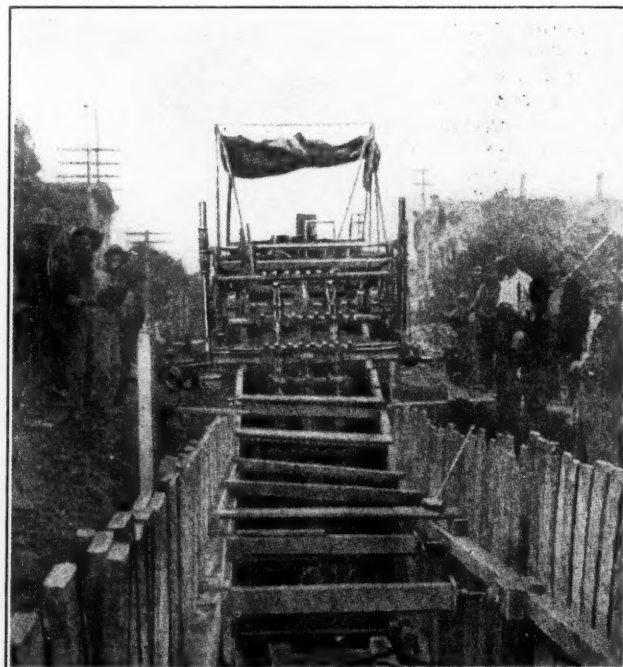
3/4-inch plate; the front wheels are 36 inches in diameter, with 8-inch-tire, of 3/4-inch plate. The back axle is 5-inch cold roller shafting, with bearings on both sides of the wheel hubs. The traction drive is a solid internal gear ring riveted to the tires of both wheels and driven by a differential shaft. The feed ratchet is on this shaft. The operator can change from no feed to full feed without stopping the machine.

The buckets are provided with a safety device which prevents breakage of the machine, which, in case a pipe, boulder or too large a size to pull out or other obstruction is met with, shears off a pin and can be replaced with a new one in a few minutes with a very slight expenditure. The machine illustrated is cutting a ditch 92 inches wide and 14 feet deep, cutting through 18 inches of rip rap and macadam, 4 feet of lake sand, 4 feet quick sand, and the remainder clay and very wet. The same machine will cut as high as 120 inches wide and up to 20 feet deep with some slight changes. The top stringers, shown in the cut, are pulled behind the machine by the machine itself and permit sheeting past the

boom. This machine is driven by a four-cylinder, four-cycle, 100-horsepower gasoline engine.

#### Large Pulley Block

A pair of the largest pulley blocks ever constructed in this country was recently made by the W. W. Patterson Co., Pittsburg, Pa., for the Seaboard Construction Company, Philadelphia. The safe working load of the two blocks is 125 tons. They are to be used for the upper lift of a large derrick car designed to handle 50-ton loads. All of the plates in the blocks are of 1/2-inch steel. The side straps are 8 inches by 3/4 inch. The head pin is 4 1/2 inches in diameter and the sheave pin 3 inches. The bottom bolt, to which the triple block is attached, is 2 1/2 inches in diameter. The sheaves are grooved for 7/8-inch cable. Each block weighs 1804 pounds. There are no shackles for the blocks as they are attached directly to the derrick by 4 1/2-inch pins.



MONAHAN UNIVERSAL DITCH EXCAVATOR



## NEWS OF THE SOCIETIES

### Minnesota Roadmakers' Association.

—The third annual meeting was held in the Senate Chamber of the old Capitol, St. Paul, December 20. The following resolutions embody the practical results of the meeting:

We strongly recommend the expenditure of State funds be made under the supervision of the State Highway Commission by duly appointed assistants under its control, and that all such supervision and all necessary engineering in the matter of State roads and bridges be done at the expense of the State.

We recommend that the Legislature pass an act to put into effect the one-quarter mill tax levy for public roads, as provided for in the constitution, and that a new amendment be submitted to the people providing for a tax of one mill for that purpose.

Realizing that the future of the road system of this State depends upon a more solid and permanent construction than has heretofore obtained, we recommend that the Legislature provide for the establishment of stone crushing plants at favorable locations in the State at the discretion of the State Highway Commission.

That an appropriation of \$150,000 a year be made to enable the State Highway Commission to carry out the recommendations contained in the foregoing resolutions and especially to provide for a corps of practical roadmakers to co-operate with the local authorities in securing a better system of highways throughout the State.

That the association realizes the value of material co-operation in the construction of the highway system of the country and recommends that our representatives in Congress be urged to support any measure looking to the continuance of a liberal policy toward the Department of Public Roads.

These resolutions were prepared by a committee consisting of R. C. Dunn, of Princeton; N. Y. Taylor, of Litchfield; W. R. Hoag, of Minneapolis; Gebhard Kimpel, of Norwood, and Louis E. Guidinger, of Winona.

The following officers were elected: James T. Elwell, Minneapolis, President; George H. Hazzard, St. Paul, Vice-President; John H. Mullen, St. Paul, Secretary.

### Indiana Good Roads Association.

The following officers have been elected: President, Clarence A. Kenyon, Indianapolis; Vice-Presidents, Carl G. Fisher, Indianapolis; John E. Lamb, Terre Haute; Stephen Stratton, Richmond; L. Ert Slack, Franklin; Marcus Sulzer, Madison, and A. M. Beardsley, Elkhart; Secretary-Treasurer, W. J. Dobyns, Indianapolis. The Legislative Committee includes L. Ert Slack, Franklin; W. D. Brandt, Brookville; W. L. Slinkard, Bloomfield; John O. Potter, Muncie; Morton H. Downey, Anderson; W. K. Hatt, Lafayette; Horace Stillwell, Anderson, and C. E. Pittenger, Muncie.

**Chamber of Commerce of Harrisburg, Pa.**—A report has been made to the Board of Trade suggesting the formation of a Chamber of Commerce, consisting of the present Board of Trade, the Civic Club, Municipal League, Merchants' Association and the various organizations. The new organization will be divided into the following bureaus: Bureau of Merchants, Civic Affairs, Municipal Affairs, Industries, Labor, and Education and Professions.

### Kentucky Good Roads Association.

At the Congress, Louisville, Ky., December 28-30, Senator George Thomas Wyatt, Logan County, was elected chairman and J. V. Beckman secretary. Harry A. Sommers, Elizabethtown, presided before a chairman was elected. Fred W. Keisker, Louisville, delivered the address of welcome. Two hundred delegates were present at the opening session. M. C. Rankin spoke in behalf of the delegates in response to the address of welcome. The all important matter considered by the meeting was the synopsis of a good roads bill which will be presented to the next Legislature. This bill will provide, among other things, for a tax levy of 10 cents on the \$100 of assessable property for the purpose of aiding the counties in the building of good roads. This tax is expected to net the State about \$500,000. Each county will then bond itself for a certain amount to carry on the work, the aggregate being more than a million dollars a year available for the construction of roads. The following are the members of the association who will draw up the bill: Senator Joseph F. Bosworth, Middlesboro; H. A. Sommers, Elizabethtown; George L. Pickett, Shelbyville; W. E. Rowe, Lexington, and Senator G. T. Wyatt, of Logan County. One of the provisions of the bill much discussed was the clause stating the proportions of expense to be borne by the counties and by the State. It was finally decided that each should pay half. The manner of selecting the highway commission was discussed and the matter was finally left to the discretion of the committee. The following is the text of the clause regarding the raising of funds of the counties: "No county shall receive the benefit of State aid in the building of metal, concrete or gravel roads unless said county has first levied and provided for a county tax for the maintenance of roads in the county, and that each fiscal court in the State of Kentucky shall have the right to make a levy of not less than 10 cents nor more than 40 cents on the \$100 for the maintenance of the roads in the several counties." The impression seemed to prevail that the Legislature would act favorably upon the suggestions made.

**Minnesota Surveyors and Engineers' Association.**—According to a resolution passed at the recent convention a new law will be submitted to the Legislature making the office of County Surveyor a more important one. The idea is to make the office of County Surveyor more an office of record, where a great deal of information now sought in the office of the Register of Deeds will be readily accessible to the public. The task of framing such a law is in the hands of its Legislative Committee, Nathan Butler, of Minneapolis; N. Y. Taylor, of Litchfield; J. E. Hill, of Anoka, and C. W. Gove, of Windom. Prof. W. R. Hoag, Minneapolis, President; W. C. Fraser, Rochester, Vice-President, and Charles A. Forbes, St. Paul, Secretary and Treasurer, were re-elected. It was decided to hold the next annual meeting at Duluth about the middle of January, 1912. The Minnesota Roadmakers' Association will be asked to hold its annual meeting in that city at the same time. The members of the St. Paul and Minneapolis Civil Engineers' societies will be invited to attend. It is planned to have these four organizations take a joint excursion through the Iron Range district and view the mining region.

### American Society of Agricultural Engineers.

—At the convention, Purdue University, Lafayette, Ind., December 28, the objects and need of the society were stated in an address by Dr. Samuel Fortier, chief of the United States Irrigation Investigation Bureau. Dr. Fortier asserted that every land grant college should establish a course in agricultural engineering without delay, as the need of agricultural engineers was great, with practically none available. He said a course in agricultural engineering should include farm water supply and sanitation, rural architecture, drainage, irrigation, farm machinery and motors and public roads. Farm water supply and sanitation were much neglected, most of the water being bad and the sanitation worse, while rural homes, as a rule, were poorly designed and constructed and were uncomfortable and unhealthful, he said. He told of the many millions of acres of unreclaimed swamp lands, and said the drainage and irrigation questions were of vital importance to America.

The following officers were elected: C. A. Ocock, Madison, Wis., president; W. F. McGregor, Racine, Wis., first vice-president; J. B. Bartholomew, Peoria, Ill., second vice-president; J. B. Davidson, Ames, Ia., secretary; E. A. White, Urbana, Ill., treasurer; councilman, Howard W. Riley, Ithaca, N. Y. Nominating committee for 1911—M. L. King, Ames, Ia.; H. J. Podlesak, Moline, Ill.; John Evans, Guelph, Ontario. Research committee, chairman, C. I. Gunness, of Fargo, N. D.

### Indiana State Association of Councilmen.

—Plans were laid January 2 at the meeting of the association at the Denison Hotel for the preparation and introduction of a bill in the Legislature for amendments to the cities and towns law which would give the City Council more power in the matter of initiating public improvement resolutions and the Mayor less power in cities of the third, fourth and fifth classes, and which would also increase the powers of the Council in cities of the first and second classes. A temporary organization of the association was made some time ago by members of the Council in several cities in the northern part of the State, but the permanent organization was not effected until this meeting, when Henry Whitaker, member of the Hammond Council, was elected president; Carl Markmuller, also a member of the Hammond Council, was elected secretary, and G. W. Greenleaf, of Terre Haute, treasurer. Members of the councils of the following cities were present: South Bend, Terre Haute, Ft. Wayne, Evansville, Michigan City, Gary, Hammond, Lafayette, Peru, Logansport and New Albany. The following committee was appointed to prepare the bill: Dr. W. H. Johnson, Indianapolis; G. W. Greenleaf, Terre Haute; C. A. Hanley, Michigan City, and Marcus Castleman, Gary.

### Norfolk Good Roads Association.

—A good roads meeting will be held at Williamsburg, Va., for the furtherance of the movement for a straight and improved highway from Newport News to Richmond. The meeting will be under the auspices of the Norfolk Good Roads Association, the Richmond Automobile Association and the Chamber of Commerce of Richmond, Newport News and Norfolk. The meeting will also be a general peninsula highway convention. A movement for a highway between Richmond and Washington via Fredericksburg will be discussed.

**Thurston County (Wash.) Good Roads Association.**—A big meeting will be held at Olympia, January 18, for the purpose of endorsing the good roads bill that is being prepared by Judge J. T. Ronald, Seattle, in behalf of the Pacific highway project through the State of Washington. The interest of British Columbia authorities in the project is shown by the fact that among the speakers will be Hon. Thomas Taylor, Minister of Public Works of British Columbia; A. E. Todd, Vice-President Victoria Board of Trade, Victoria, B. C., and E. S. Rowe, Vancouver.

### Calendar of Meetings

- January 10-14.**  
**Organization of City Officials for Standardizing Paving Specifications.**—Second Meeting, Engineering Societies Building, 29 W. 39th street, New York, N. Y.—John B. Hittell, Secretary-Treasurer, Chief Engineer of Streets, Chicago, Ill., Hotel Rector, New York, N. Y.
- January 11-13.**  
**Michigan Engineering Society.**—Annual Meeting, Lansing, Mich. Alva L. Homer, Secretary, Grand Rapids, Mich.
- January 12-13.**  
**New York Tax Reform Association.**—State Conference on Taxation.—A. C. Pleydell, Secretary, New York, N. Y.
- January 12-14.**  
**Montana Society of Engineers.**—Annual Meeting, Helena, Mont.—Clinton H. Moore, Secretary, Leysen Block, Butte, Mont.
- January 12-14.**  
**National Civic Federation.**—Annual Convention, New York, N. Y.—D. L. Case, Secretary, 1 Madison avenue, New York, N. Y.
- January 12-14.**  
**Indiana Engineering Society.**—Annual Meeting, Hotel Denison, Indianapolis.—Charles Brossman, Secretary, Union Trust Building, Indianapolis, Ind.
- January 16-20.**  
**Canadian Cement and Concrete Association.**—Annual Convention and Exhibition, Toronto, Ont.—R. E. W. Hagarty, Secretary, 662 Euclid avenue, Toronto, Ont.
- January 17.**  
**Engineers' Society of Western Pennsylvania.**—Annual Meeting, Pittsburg, Pa.—Elmer K. Hiles, Secretary, 803 Fulton Building, Pittsburg, Pa.
- January 17-19.**  
**American Institute of Architects.**—Annual Convention, San Francisco, Cal.—Glenn Brown, Secretary, Octagon, Washington, D. C.
- January 18.**  
**Municipal League of North Carolina.**—Annual Meeting, Raleigh.—Mayor J. S. Wynne, Raleigh.
- January 18-19.**  
**American Society of Civil Engineers.**—Annual Meeting, New York.—C. W. Hunt, Secretary, 220 W. 57th street, New York.
- January 20.**  
**Illuminating Engineering Society.**—Annual Meeting, New York, N. Y.—P. S. Millar, Secretary, 29 W. 39th street, New York, N. Y.
- January 24-26.**  
**American Society of Heating and Ventilating Engineers.**—Annual Meeting, New York, N. Y.—W. M. Mackay, Secretary, P. O. Box 1818, New York, N. Y.
- January 24-26.**  
**Ohio Engineering Society.**—Annual Meeting, Columbus, O.—C. J. Knisely, Secretary, New Philadelphia, O.
- January 25-27.**  
**Illinois Society of Engineers and Surveyors.**—Annual Meeting, East St. Louis, Ill. E. E. R. Tratan, Secretary, 1636 Monadnock Block, Chicago, Ill.
- February 1-3.**  
**Nebraska Cement Association.**—Western Cement Exposition, Omaha, Neb.—Peter Palmer, Secretary, Oakland, Neb.
- February 6-11.**  
**National Brick Manufacturers Association.**—Annual Convention, Louisville, Ky. T. A. Randall, Secretary, Indianapolis, Ind.
- May 29.**  
**American Water Works Association.**—Annual Convention, Rochester, N. Y.—J. M. Diven, 14 George street, Charleston, S. C.
- May.**  
**City Commission Congress.**—Meeting, Galveston, Tex.—Mayor Lewis Fisher, Chairman of Committee, Galveston, Tex.

### PERSONALS

ANDERSON, E. PAUL, Lexington, Ky., has been appointed Consulting Engineer.

BARRETT, J. W., Athens, Ga., has been elected Consulting Engineer at Gainesville, Ga. E. B. Epps has been elected City Engineer.

BAUER, J. L., has been appointed Engineer for Garwood, N. J., Borough.

BUCK & SHELDON, INC., Consulting Engineers, Hartford, Conn., have opened a branch office in Willimantic, Conn., in charge of H. R. Turner.

COLLIN, D. F., Kansas City, Mo., until recently manager of Bell Telephone Co., became business manager of the W. H. Palmer Co., engineers, Dwight Building, Kansas City, Mo., on Jan. 1.

CROCKER, R. Leslie, for fifteen years with the Boston Elevated Ry. Co., has opened an office in the Park Row Building, New York City, for general practice of engineering and surveying.

DIMMICK, J. K., on Jan. 1 assumed presidency and active management of the Dimmick Pipe Co., Birmingham, Ala. He is senior partner in pig iron and coke firm of J. K. Dimmick & Co., Philadelphia.

DE CLAMECY, Philip, New York City, has been appointed Chief Engineer with the Coffin Valve Co., Boston, Mass.

FLOYD, RICHARD, was elected Mayor of Huntsville, Ohio, in place of Mayor Knotts, who resigned.

FOLSOM, W. C., Washington, D. C., has been appointed Chief Sanitary Inspector at Cincinnati, Ohio.

HENDRICK, Calvin W., Chief Engineer of the Baltimore Sewerage Commission, has, with the consent of the Commission, accepted an invitation to report on the best source for a new water supply for the Maryland Tuberculosis Sanatorium, a State institution, in Frederick County.

JACOBS, Taylor J., has been elected Mayor of Rockport, Ind., vice Mayor Kercheval, deceased.

MACCARTHY, Timothy J., Holyoke, Mass., has been appointed City Engineer, succeeding James E. Tighe.

MCCORKLE, W. H., has been appointed Chairman of the Board of Public Works, Lexington, Ky., and Newton L. Stout member of the Board of Police and Fire Commissioners.

MOSHER, Edward, Elizabeth, N. J., has been appointed Township Engineer, Cranford, N. J.

NUGENT, JAMES, Newark, N. J., has been reappointed City Counsel.

RANSOM, Wm. A. Elizabeth, N. J., has been elected President of the Board of Water Commissioners, and David Gage was chosen as Engineer.

RICHMOND, Wm., Lockport, N. Y., has been reappointed Water Commissioner; J. F. Frehsee has been reappointed City Engineer and Surveyor; Frank J. Reynolds and Alexander Clark have been reappointed to the Police Board, and John R. Mahaney and James W. Hearn become members of the Fire Board.

SNOW, Wm. H., Holyoke, Mass., has been appointed Manager of the Gas and Electric Department; Philip M. Judd, member Board of Fire Commissioners, and Michael F. Walsh member of the Board of Public Works.

WALSH, Thomas J., Boston, Mass., has opened an office at 141 Milk street, for the practice of electrical engineering. Mr. Walsh is a graduate of the Sheffield Scientific School, a junior member of the A. S. M. E. and an Associate Member of the A. I. E. E. He has been connected with the Stone & Webster Engineering Corporation for several years.

### TRADE NOTES

**Cast Iron Pipe.**—Chicago—Foundries expect to book a large tonnage before spring, although prices are low and unsatisfactory. Quotations: 4-inch, \$25; 6 to 12-inch, \$24; 16-inch and up, \$23.50. Birmingham—Aggregate stocks on hand January 1 were larger than a year ago. Still the outlook is considered more favorable than a year ago. Quotations: 4 to 6-inch, \$19 to \$19.50; 8 to 12-inch, \$18 to \$18.50; over 12-inch, average, \$17. New York—Conditions continue quiet. Quotations: 6-inch, carload lots, \$22.

Lead—Prices are firm. New York: 4.50c.; St. Louis, 4.35c.

**Cement Magazines.**—Cement Age, of New York, and Concrete Engineering, of Cleveland, O., have been consolidated into one publication under the name "Cement Age, with Which Is Combined Concrete Engineering." Robert W. Lesley will be editor and Allen Brett and Edward A. Trego associate editors of the new publication. The New York office, 30 Church street, will be in charge of Frederick F. Lincoln, president of the Cement Age Company.

**Sale of Water and Traction Company.**—The franchise and all the properties of the Somerset Water, Light & Traction Company will be sold at public outcry by a special master commissioner of the Pulaski Circuit Court, Somerset, Ky., on January 6, for the purpose of satisfying the stockholders and creditors of the company. The company was capitalized at \$250,000 and was organized by Dr. W. Godfrey Hunter. About two years ago a number of the stockholders joined in a suit to have the affairs of the company and its entire management and control taken out of the hands of Dr. Hunter and placed in the hands of a receiver, which was done, and it has been in the hands of a receiver since that time. The organization of the Somerset Water, Light & Traction Company was the consolidation of the Water Company, the Light Company and the franchise for a street railway. Soon after these companies were taken over by Dr. Hunter he constructed the electric street car line, which has been in operation for two years or more, and is now being operated by the receiver.

**Water Company Reorganization.**—The syndicate headed by C. Terry Treadway, president of the Bristol National Bank, which has been bidding several weeks past for the controlling interest in the stock of the Bristol Water Company, has secured it.

**New High-Pressure Centrifugal Pump.**—The Hayton Pump Company, Hannibal, Mo., has been incorporated to manufacture turbo-centrifugal high-pressure pumps. The pumps are the invention of T. R. Hayton, and it is claimed they show a large gain in efficiency over many others now on the market, the gain ranging from 20 to 50 per cent. The company has made arrangements with the Leader Foundry Company, Quincy, Ill., for the manufacture of the pumps.

**Garbage Receptacles.**—The Buffalo Receptacle Company, Buffalo, N. Y., has been incorporated with a capital stock of \$150,000, and will establish a plant in that city for the manufacture of garbage cans and refuse receptacles. Considerable machinery will be required in the way of shears, punches, presses, riveters, etc. Gustave Steinwachs, 1047 Genesee street, is manager.



**Water Petition.**—Forty residents of Berlin, Conn., have petitioned the General Assembly for a charter for a water company. The petition recites that common convenience and necessity require that the different communities in the town of Berlin be supplied with running water for the purpose of domestic use and fire prevention, and that there are within the town streams of water, springs and ponds available for such supply. Among the signers of the paper are: R. O. Clark, E. I. Clark, H. H. Damon, G. B. Norton, D. E. Bradley, J. T. Molumphy, Francis Deming and John Norton.

**Water Meters.**—The Neptune Meter Company, New York, N. Y., has asked the Board of Control, Norfolk, Va., for permission to take up and test two or three hundred of the water meters installed by that concern four years ago. As the meters have been given no attention, simply having been placed and the water run through them without registering, this concern, desiring to again compete for a Norfolk meter contract, wishes to inform itself regarding the condition of the old meters, as to how they have stood the peculiar "service" to which they have been put. The Board of Control referred the application to Thomas B. Dornin, chief engineer of the water department. In the city's last meter purchase 3500 meters were bought from the Neptune Company.

**General Electric Plant at Erie, Pa.**—One of the largest projects calling for machinery expenditures expected to come before the trade this year is that of the General Electric Company, Schenectady, N. Y., which is establishing a large plant at Erie, Pa. The company has owned a tract of land at Erie for several years, and it now has a large foundry and other smaller buildings there. It is expected eventually to erect a general machine shop, and inquiries now out indicate that the company's plans will mature before the year is over.

**Steam Shovel Companies.**—The Marion Steam Shovel Company, Marion, O., which has been in business for 26 years, brought suit against the Marion Shovel & Dredge Company, recently incorporated, seeking to restrain the latter from the use of its name on the ground of the similarity being likely to lead to the diversion of trade. The court decided adversely to the suit, holding that the name of the new company is a sufficiently distinct designation.

**Park Lighting Standards.**—The Elmer P. Morris Company, of 90 West street, will furnish 500 posts for Tungsten park lighting in the City of New York. About half of these are of a new type and will be used for the lighting of the transverse roads through Central Park and the balance for regular installations.

**Snow Plow.**—The Street Committee of Plainfield, N. J., in its annual report, says that the new Twentieth Century Grader has proved a very efficient sidewalk cleaner as well as a gutter scraper.

**Patent Paving Suit.**—The Rudolph S. Blome Company, Chicago, Ill., has served notice on Sioux City, Ia., that the city will be made the party to a lawsuit if certain concrete pavements are laid according to specifications under which bids were recently received.

**Pipe Suit.**—An action for \$5,560 has been filed by the Central Foundry Company of New Jersey against the City of

Shattuck, Okla. The company alleges the city has failed to pay for purchased water mains.

**A Wire Rope Trade Inquiry.**—The Broderick & Bascom Rope Company, manufacturer of wire rope, St. Louis, Mo., addressed 60 or more of its agents scattered throughout the country, taking in every State, asking for their views concerning the outlook for trade for 1911. A summary of the replies has been printed by the company. These replies, with very few exceptions, take an exceedingly hopeful view of business for the coming year. The wire rope trade is regarded by the company as a fair barometer of the general commercial condition from the fact that it is not confined to any one line, wire rope being largely used in lumber and logging camps and by oil well drillers, mining companies and boat builders, elevator builders, contractors, etc., so that consumers' interests are much diversified. The tenor of these replies is radically different from the views of James J. Hill, published by the Associated Press about December 1, which caused the inquiry to be made by the company. The Broderick & Bascom Rope Company states its opinion that 1911 will be a banner year unless trade should be interfered with by tariff tinkering, adverse railroad legislation or general labor troubles.

**Change of Address.**—The Lackawanna Steel Company announces that after January 19 its general offices, now at 2 Rector street, New York City, will be located at its works at Lackawanna, Erie County, N. Y., where all correspondence and communications for the President, Vice-President and General Manager, Secretary, Treasurer, general sales department and traffic department should then be addressed. The office of the assistant to the President will remain at 2 Rector street, New York City, where the company will also maintain a district sales office.

**Oxy-acetylene Flame in Bridge Wrecking.**—The use of an oxy-acetylene flame in removing the 450-ton turntable drawspan, 330 feet long, of the Madison avenue bridge in New York City, is estimated to have saved several weeks' time, the actual work of removal having been done in one week. One oxy-acetylene outfit, with two torches and a total consumption of about 1500 cu. ft. of oxygen and 450 cu. ft. of acetylene gas, were used in the cutting operation. The method of operation was as follows: The bridge was swung open and supported by cribbing built up on the fender pin to provide for unbalanced reactions as the work of removal progressed. Two floating derricks were made fast to one end of the span and the top and bottom ends were cut through vertically about 50 feet from the end. The main diagonal eyebars were also cut, the stringers disconnected from the floorbeam and the end of the span was detached and lowered by the derricks. By similar methods the span was cut into seven pieces, two weighing 25 tons each, two 66 tons, two 75 tons and the center tower 130 tons.

## NEW INCORPORATIONS

**Huntsville, Alabama, Gas Light & Fuel Co.,** Camden, N. J.; capital, \$300,000. Incorporators: William P. Huston, M. Rea Gano and Howard L. Miller. The company is to deal in stocks, bonds, debentures, securities, etc.

**Federal Water Proofing Co.,** Akron, O.; capital, \$100,000. Incorporators: H. B. Ball, F. S. Nash, H. H. McCloskey, W. H. Miller and R. A. Carrell.

## PATENT CLAIMS

979,146. **CORRUGATED SECTIONAL NESTABLE CULVERT.** Charles A. Foster, Portland, Ore.—Serial No. 437,214.

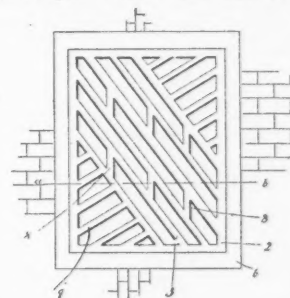
An improved culvert, comprising upper and lower semicircular sections, each formed of sheet metal corrugated throughout its length along lines substantially at right angles to its longitudinal axis, a number of retaining plates fixed to one side of one of said semicircular sections, said



plates being spaced apart from each other and being firmly fixed at one end to the adjacent semicircular section and each having its body portion slightly spaced apart from the adjacent portion of the section to which it is attached to admit the edge of the other semicircular section between the plates and the section to which they are attached.

979,182. **CATCH-BASIN COVER.** James H. MacDonald, New Haven, Conn. Serial No. 471,787.

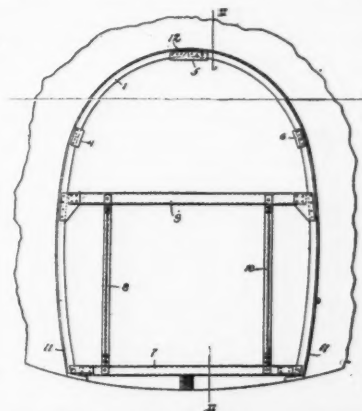
In a catch-basin cover, the combination with an open oblong rectangular frame having an inwardly extending bearing-flange, of a grille transversely bowed on its longitudinal axis so as to present a concave upper surface and consisting of a rim adapted in form and size to be set into the said open frame and having a main



onally between opposite corners of the said group of long parallel bars extending diagonally and reinforced by short bars arranged parallel with each other and with the sides of the said rim and at an angle to the said long bars, and the triangular spaces between the two remaining corners of the rim and the outer edges of the outermost of the said long bars being respectively filled by groups of parallel bars differentiated in length and joining the sides and ends of the rim at an acute angle and the said outermost bars at substantially a right angle, the open spaces produced in the grille by the described construction and arrangement of bars being large and yet disposed so as to prevent a wheel rim from entering them and getting caught.

979,185. **TUNNEL FORM.** Charles D. McArthur, Pittsburg, Pa., assignor to Blaw Collapsible Steel Centering Company, Pittsburg, Pa., a Corporation of New Jersey. Serial No. 542,065.

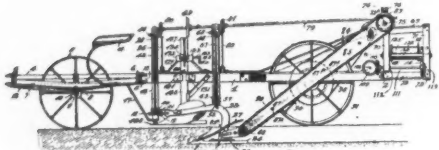
In combination in a tunnel form, a series



of spaced ribs comprising channels having inwardly directed flanges, bearing strips of less width than the channels secured to the outer faces thereof, lagging plates having their end edges resting upon the bearing strips; and means for securing the plates detachably to the flanges of the channels.

979,442. **DITCHING MACHINE.** John Louis Crismon, Eagle, Col. Serial No. 507,218.

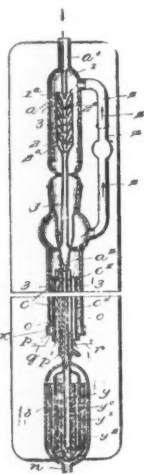
In a ditching machine, the combination with a frame mounted on front and rear wheels, of horizontally disposed vertically adjustable bars mounted on said frame; a plow connected at its opposite ends to said bars; an inclined conveyor secured at its lower end to said plow in position to



receive earth therefrom; means for adjusting said plow laterally upon said bars, and said inclined conveyor simultaneously therewith; a laterally adjustable horizontally disposed conveyor on said frame adapted to receive the discharge from the inclined conveyor; means for changing the direction of travel of said horizontally disposed conveyor; and vertically adjustable plows on said frame in front of said rear wheels, having their mold boards facing each other.

979,999. **APPARATUS FOR THE STERILIZATION OF WATER OR OTHER LIQUIDS.** Casimir Stanislas Plestrak, Paris, France. Serial No. 579,475.

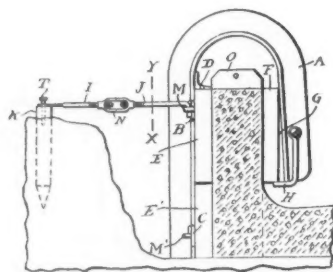
An apparatus for sterilizing water and other liquids by means of ozone comprising a vacuum tube, said vacuum tube con-



taining mercury, an electrode mounted within said vacuum tube, an outer electrode arranged concentrically with and surrounding said inner electrode, an air passage between said electrode and means for aspirating air through said air passage and into contact with the liquid to be sterilized.

979,863. **CEMENT FORM.** Francis T. Leeder, Sioux City, Ia., assignor to Lewis & Leeder, Sioux City, Ia., a Copartnership. Serial No. 557,405.

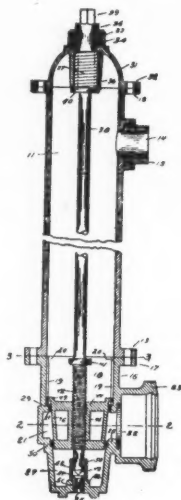
In a cement form for curbs, the combination with boards for inclosing the cement, of an inverted U-shaped holder one leg of which is longer than the other, guides se-



cured to the boards on the long side of the holder in which the holder is held in position, a hook pivoted to the short end of the holder and adapted for adjustment under the board on the short or gutter side of the holder, and a stop on the long side of the holder adapted to rest on the top board inclosing the cement, substantially as described.

979,941. **HYDRANT AND VALVE THEREFOR.** John Lansing Fuller, Schaghticoke, N. Y. Serial No. 577,932.

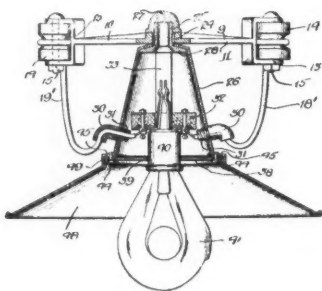
In a hydrant, a stand pipe; a bottom portion; a lateral inlet; a vertically movable main valve; a valve stem having rotary movement for raising and lowering



said valve and a limited vertical movement with respect thereto; and a waste outlet in said bottom portion below said main valve including a valve seat and an aperture above said valve seat, said valve stem being constructed and fitted to engage said outlet valve seat and thereby to close said outlet.

979,459. **ELECTRIC STREET LIGHTING.** Carl Henry Froelich, St. Louis, Mo. Serial No. 570,326.

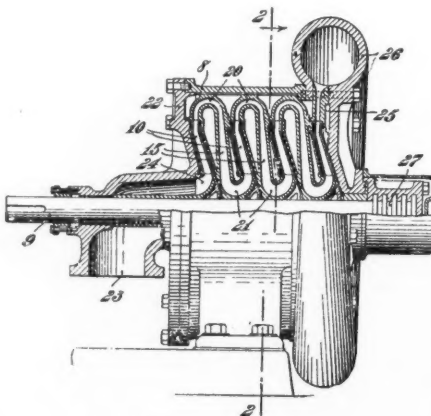
In electric street lighting, the combination of a suspension member having three



arms, flexible supporting elements respectively connected to said arms, a lamp-holder secured to said member, and an electric light socket supported by said holder.

979,634. **ROTARY PUMP.** Nicholas W. Akimoff, Philadelphia, Pa. Serial No. 484,884.

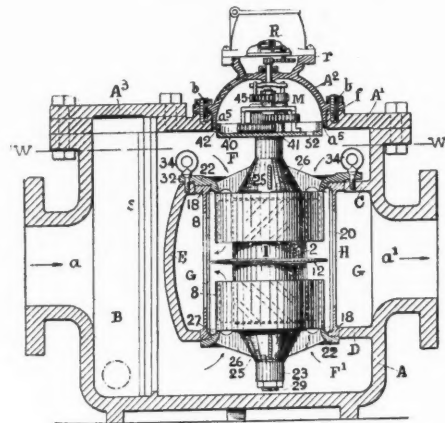
In a pump of the character described, a shaft, a plurality of impellers secured to



said shaft, said impellers being inclined backwardly substantially as and for the purpose set forth.

979,518. **WATER METER.** William H. Larrabee, Worcester, Mass., assignor to Union Water Meter Company, Worcester, Mass., a Corporation of Massachusetts. Serial No. 462,022.

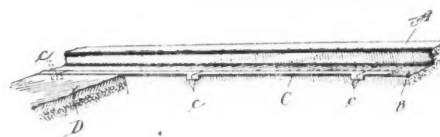
In a water meter, a meter wheel or propeller, consisting of a cylindrical body having near its respective ends similar oppositely disposed series of projecting helical vanes with water ways between, each



series surrounded by an outer cylindrical shell attached thereto, and a circumferential projecting flange around the cylindrical body midway between the respective series of vanes; in combination with wheel-supporting means having guide passages for directing currents of water downward and upward onto the respective series of vanes, at the upper and lower ends of the wheel.

979,577. **PROCESS OF AND TEMPLET FOR USE IN LAYING PAVEMENTS.** Eugene Geo. Schwendeman, Oak Park, Ill., assignor to The American Asphalt Paving Company, Chicago, Ill., a Corporation of Illinois. Serial No. 584,183.

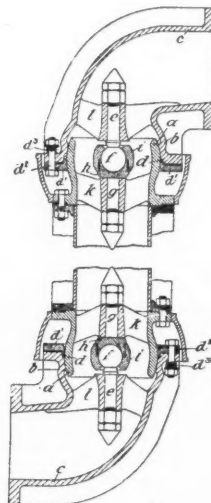
A templet for the purpose specified com-



prising a long flat strip having one or more ears projecting therefrom and extending transversely thereof at one edge.

979,513. **FLEXIBLE PIPE JOINT.** Johann Koenig, Riga, Russia. Serial No. 485,436.

A flexible pipe joint comprising two pipes making a ball and socket joint with each other, and, located within the pipes



and connecting them, a second ball and socket joint whose center point coincides with that of the said first joint, and which consists of a ball member connected to the one pipe and engaging a bearing cup connected to the other pipe and having a cap by means of which the ball member is confined in the bearing cup, so that the inner ball and socket joint is adapted to take off the outer joint the pressure in either longitudinal direction.



## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS</b>				
Minnesota	Minneapolis	Jan. 13, 7:30 p.m.	Furn. paving material during 1911, inc. sandstone, creos. wood and vit. paving block; granite and sandstone curb, crushed granite, cement.	Henry N. Knott, City Clerk.
Illinois	Chicago	Jan. 14	Furn. at bldgs and viad. approx. 4,000 sq. yd. sect. wood pave.	B. J. Mullaney, Comr. Pub. Wks.
New York	New York	Jan. 14	Regulating, grading, setting curbstones, flagging sidewalks, etc., Jerome ave. to Macomb's Road, and Gun Hill Rd. to Burke av.	Pres. Bronx Boro, 177th St. & 3d Ave
California	Fresno	Jan. 14	Construction of mountain road from plains to old Milwood road and Happy Gap. Approx. 21 miles.	Board of Supervisors.
California	Los Angeles	Jan. 16, 2 p.m.	Improving portions of Huntington Drive in Los Angeles County	C. G. Keyes, County Clerk.
Kentucky	Paducah	Jan. 16, 3 p.m.	Bldg. sidewalks, etc., 3 jobs: concrete walks: 14,325, 23,000 and 13,300 sq. ft.; concrete driveways: 820, 800 and 380 sq. ft.; concrete gutters: 2,900, 3,940 and 2,520 lin. ft., granite curb: 2,900, 3,940 and 2,500 lin. ft.; L. A. Washington, City Engineer.	
Ohio	Lakewood	Jan. 16, noon	Paving 3 aves., and one road; Wm. H. Evers Eng. Co., Arc. Clvd	Board of Public Works
Oregon	Salem	Jan. 16	Paving 175,000 sq. yds. street surface with hard surface pave.	B. M. Cook, Village Clerk.
California	Sacramento	Jan. 16	Constr. Huntington Drive rd. from Los Angeles to Pasadena and from Bairdstown to Alhambra.	W. A. Morse, City Recorder.
Washington	Olympia	Jan. 18	Grad., drain, mac., etc., State Aid rd. 99, Walla Walla Co.	State Hwy. Comr. Sacramento, Cal.
New Jersey	Mt. Holly	Jan. 19, 11 a.m.	Grav. rd. through Akron from Gardner's Cor. to Atlantic Co. line	H. L. Bowlby, Sec'y. St. Hwy. Bd.
Virginia	Roanoke	Jan. 19, noon	Constructing granolithic sidewalks; grading two streets.	Earl Thomson, Co. Engr., Camden.
Ohio	Cincinnati	Jan. 20, noon	Improving Dayton Pike.	W. L. Craft, City Clerk.
Ohio	Hamilton	Jan. 20, noon	Imp. Dayton Pike Sycamore twp., Spec. No. 127; Bond \$1,000.	Fred Dreihls, County Clerk
New Jersey	Alpine	Jan. 21	Bldg. stone rd. 2,570 ft. long, from Tenafo to Alpine, Sylvan av.	Fred Dreihls, Clk. County Comrs.
Alabama	Wetumpka	Jan. 23	Road improvements to cost \$170,000.	Franklin W. Hopkins, Mayor.
California	Los Angeles	Jan. 23	Improving Valley Road.	Solomon Norcross, C.E., Atlanta, Ga.
California	Hemet	Jan. 25	Imp. Harvard st. includ. cement curb and gut & conc. culverts	C. G. Keys, Clk. Bd. Superv.
Indiana	Fowler	Feb. 1, noon	Construction of one mile of gravel road in Benton County	C. G. Hamilton, City Clerk.
West Virginia	Huntington	Feb. 6, 1 p.m.	Grad. and pave. 20 streets with vit. brick, bitulithic, sheet asphalt, asphalt block or concrete asphalt.	Lemuel Shipman, County Auditor.
Florida	Palatka	Feb. 7, 7:30 p.m.	Constructing approx. 16,500 sq. yd. concrete sidewalks.	John Coon, Comr. of Streets.
Canada	Vancouver, B. C.	Feb. 7	Furnish road roller, weight not less than 15 tons.	A. T. Triay, City Clerk.
Oregon	Portland	Feb. 23	Constructing pavement on Jersey st.	Wm. McQueen, City Clerk.
				J. W. Morris, City Engineer.
<b>SEWERAGE</b>				
Minnesota	Minneapolis	Jan. 13, 7:30 p.m.	Furn. Portland cement for sewer and street work, etc., in 1911.	H. N. Knott, City Clerk.
Oklahoma	Collinsville	Jan. 14	Constructing sanitary sewer system.	W. J. Pattison, City Clerk.
New Jersey	Elizabeth	Jan. 16, 8:30 p.m.	Furn. and lay 570 ft. 10-in., 505 ft. 8-in., sewer, m.h., etc.	N. K. Thompson, Street Comr.
Oklahoma	Checotah	Jan. 16	Bldg. 11 miles 8, 10 and 12-in. san. sewer, disposal works, etc.	W. W. Southard, City Engineer.
Kentucky	Paducah	Jan. 16, 3:30 p.m.	Constructing c.i. drain pipes, paving, etc., 2 sts.	L. A. Washington, City Engineer.
Pennsylvania	Masontown	Jan. 16	Constructing a sewer and water system for borough.	C. V. Cloud, Chm. Council Com.
New Jersey	Elizabeth	Jan. 16, 8:30 p.m.	Con. 570 ft. 10-in. 505 ft. 8-in. sewer pipe, calked joints, etc.	A. E. Fortier, Town Clerk.
Maryland	Annapolis	Jan. 17, 11:30 a.m.	Constructing sewers in Carroll and 5th sts., Brooklyn.	D. F. Mackenzie, City Recorder.
Ohio	Cincinnati	Jan. 17, noon	Constructing sewers in Otto ave.	John T. Geary, City Clerk.
Washington	Spokane	Jan. 20, 2 p.m.	Furn. 7,000 ft. of 10-in. corrugated drain pipe, perf. bottoms.	Jos. G. Armstrong, Dir. Pub. Wks.
Ohio	Elyria	Jan. 20	Constr. trunk sewer, cost approx. \$26,000.	John Gifford, City Purch. Agt.
Kentucky	Louisville	Jan. 20	Constr. sewer known as 2d St. sewer, incl. 2,430 ft. of 42 and 48-in. concrete sewer.	Rose Moriarty, City Clerk.
New York	Syracuse	Jan. 26 10 a.m.	Bldg. Harbor brook intercepting sewer and imp. stream.	Comr. of Sew., 605 Equitable Bldg.
Manitoba, Can.	Souris	Feb. 1	Furn. 31,000 ft. vit. sewer pipe, etc., spring and summer, 1911.	G. D. Holmes, Ch. Engr. Inter. S. Bd.
				C. R. Heath, Health Engineer.
<b>WATER SUPPLY</b>				
Washington	Spokane	Jan. 13, 2 p.m.	Bids in triplicate for 100 4-in. and 30 6-in. hydrants; 50 6-in., 25 8-in. 25 10-in. and 25 12-in. valves, c.i. bell and 50 6-in. valves, Kal. bell.	John Gifford, City Purchasing Agt.
Kentucky	Dayton	Jan. 16	Franchise to construct and operate w. w. system for 18 years.	C. V. Cloud, Chm. Council Com.
Pennsylvania	Masontown	Jan. 16	Constructing a water and sewer system for Borough.	A. E. Fortier, Town Clerk.
Ontario	Pembroke	Jan. 16	Furn. water main and piping.	D. F. Mackenzie, City Recorder.
Minn.	Faribault	Jan. 16, 8 p.m.	Drilling artesian well approx. 1,000 ft. and casing old wells.	John T. Geary, City Clerk.
New York	Yonkers	Jan. 16	245 lengths of 12-in pipe.	Jos. G. Armstrong, Dir. Pub. Wks.
Pennsylvania	Pittsburg	Jan. 17	Furn. and erect, 1,000,000 and 6,000,000 gal. pumping station	J. A. Leinbach, City Clerk.
Pennsylvania	Lancaster	Jan. 17	Furn. elec. driven centrif. pump having capacity 10,000,000 gals. in 24 hours.	
Michigan	Grand Rapids	Jan. 19, 8 p.m.	Bldg. fireproof w.w. and filtration plant, one story, 178x178 ft., and repair shop, two stories, 40x66 ft.; cost \$400,000; Hering & Fuller, Engrs. 170 Broadway, New York City.	S. A. Freshney, Gen. Mgr., Bd. P. W.
Texas	Fort Sam Hous'n	Jan. 19, 11 a.m.	Con. 3 reinforced concrete water troughs, etc.	P. W. Guiney, Con. Q.M.
Arizona	Douglas	Jan. 19, 1 p.m.	Con. reservoir, water mains, valves, hydrants, etc.	R. G. McArthur, Sec'y. W. W. Com.
Illinois	Chicago	Jan. 19, 11 a.m.	Furn. and install two 20,000,000 gal. centrif. pumps and two 1,000 h.p. elec. motors, with wir., pip., etc., at pump station.	B. J. Mullaney, Comr. Pub. Wks.
Ohio	Newburg	Jan. 21, noon	Constructing water mains.	J. W. Shimek, Clk. Bd. of Control.
Oregon	Astoria	Jan. 23, 2 p.m.	Furn. labor and material for wood stave pipe.	Lars Bergsvik, Engr. Wt. Com.
Missouri	Kansas City	Jan. 26	Bldg. horizontal shaft centrifugal pump, direct connected to vertical cross-com. engine, capacity 30,000,000 gals.	W. Kiersted, Ch. Engr. Water Dept.
Washington	Spokane	Jan. 30, 2 p.m.	Furn. two 14 in. single suction, hor. shaft, two-stage centrifugal pumps, valves, etc.	John Gifford, City Purch. Agt.
Manitoba, Can.	Souris	Feb. 1	Furn. 425 tons c.i. water pipe, specials, fire hydrants, gate valves and boxes, pig lead, etc., in spring and summer of 1911.	J. W. Breakey, Secy.-Treasurer.
Iowa	Rippey	Feb. 6, 8 p.m.	Construction of water works system.	J. A. Haberer, Town Clerk.
<b>BRIDGES</b>				
Ohio	Cincinnati	Jan. 13, noon	Bldg. concrete bridge on Cooper ave.	Fred Dreihls, Clk. Co. Comrs.
California	Fresno	Jan. 14	Constr. eight bridges on mountain road.	Board of Supervisors.
Kansas	Wichita	Jan. 16	Bldg. pile bridge in Lincoln twp.	Jesse Leland, County Clerk.
Ohio	Jefferson	Jan. 16, 1 p.m.	Constructing superstructure of bridge over Grand river.	A. V. Hillyer, County Clerk.
Indiana	Indianapolis	Jan. 18, 10 a.m.	Constructing bridge over canal at College ave.	Albert Sahm, Co. Auditor.
Dist. of Col'bia	Washington	Jan. 23, 2 p.m.	Strengthening Calvert st. bridge. Approx. \$25,000.	Wm. V. Judson, Engr. Comr.
Virginia	Richmond	Feb. 1, 4 p.m.	Plans, designs, detailed drawings, strainsheets, specifications and proposals for \$225,000 rein. concrete bridge over James ri.	Charles E. Bolling, City Engineer.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>LIGHTING AND POWER</b>				
Ohio.....	Columbus.....	Jan. 13, 9 a.m.....	Elec. wiring and heating plant for Ohio Penitentiary.....	Marriott & Allen, Architects.
New Jersey.....	Perth Amboy.....	Jan. 15.....	Structural iron work on 200x200 ft., power house, 50 ft. high..	Public Service Electric Company.
New York.....	Albany.....	Jan. 16.....	Lighting streets in Albany.....	F. N. Bresler, City Clerk.
Maryland.....	Annapolis.....	Jan. 17, 11 a.m.....	Lighting sts. in Arundel County by arc or incan. elec. lamps for terms of one, two, five or ten years.....	S. O. Tilgman, Clk. Co. Comrs.
California.....	Ft. Winfield Scott	Jan. 19.....	Constr. oil stor. tank, pipe line, pump, motor, etc.....	Maj. Geo. McK. Williamson, Q.M. U.S.A.
Washington.....	Spokane.....	Jan. 20, 2 p.m.....	Furn. induction motor and switchboard complete; also 3,000,-000 gal. two-stage horizontal shaft pump.....	John Gifford, City Purch. Agt.
Illinois.....	Peoria.....	Jan. 24.....	Construction of bridge across Illinois river.....	Fred B. Tracy, City Clerk.
Georgia.....	Fort Screven.....	Jan. 30, 11 a.m.....	Constructing electric light system.....	Constructing Quartermaster.
Iowa.....	Atlantic.....	March 1.....	Imp. Elec. Lt. and Power Plant, probable cost \$40,000.....	T. E. Nichols, City Clerk.
<b>FIRE EQUIPMENT</b>				
Washington.....	Tacoma.....	Jan. 16, 3 p.m.....	Furn. motor-driven comb. chemical engine and hose wagon; one motor-driven Aerial ladder truck; also auto roadster to carry four persons.....	L. W. Roys, Comr. Pub. Safety.
Rhode Island.....	E. Providence.....	Jan. 21.....	Furnishing automobile fire truck.....	W. E. Smyth, City Clerk.
<b>MISCELLANEOUS</b>				
Minnesota.....	Minneapolis.....	Jan. 13 7:30 p.m.....	Furn. Portland cement for filter plant, st. and sew. work in 1911	Henry N. Knott, City Clerk
Louisiana.....	Lake Charles.....	Jan. 16.....	Erect. \$165,000 Court House, Fayrot & Livadais, Archts., New Orleans.....	Police Jury.
New York.....	New York.....	Jan. 16.....	Furn. mat. and resurf. floors, City Hosp. Blackwell's Island..	M. J. Drummond, Comr. Pub. Char.
Pennsylvania.....	Schuylkill Haven	Jan. 17, noon.....	Con. sewage disposal and power plant; also main bldg.....	Charles Straughn, County Recorder.
New York.....	New York.....	Jan. 17.....	Disposition of garbage in Manhattan and Bronx.....	W. H. Edwards, Comr. St. Clean.
Pennsylvania.....	Philadelphia.....	Jan. 20.....	Bldg. superstruc. of Vine st. pier; cost about \$35,000.....	J. F. Hasskarl, Act. D. Dt. W. & D.
North Dakota.....	La Moure.....	Jan. 20, 2 p.m.....	Furnishing cor. galvanized culverts needed during 1911.....	C. J. Alistair, County Auditor.
Minnesota.....	Minneapolis.....	Jan. 21, noon.....	Dredging in Lake Calhoun and filling low lands and boulevard adjacent; 500,000 cu. yds. material to be moved; \$1,000 check with bid.....	J. A. Ridgway, Secy. B.I. Pk. Comrs.
Oklahoma.....	Ardmore.....	Jan. 23, noon.....	All furniture to furnish and equip new County Court House.....	R. F. Scivally, Chm. B.I. County Co.
California.....	San Jose.....	Feb. 6.....	Constructing tuberculosis ward, county hosp. Est. cost \$10,000.	Roy Walter, City Clerk.

## STREET IMPROVEMENTS

**Corning, Cal.**—Laying of 1½ miles of concrete sidewalks is being considered.—Trustees Wm. Dale and Samuel Benton, Special Committee.

**Los Angeles, Cal.**—Board of Supervisors has adopted specifications for about 11 miles of road near Lamanda Park; bids will be asked at once.

**Reedley, Cal.**—Citizens are urging County Supervisors to ask for bids for building 14-ft. road in mountains above Millwood and Happy Gap; cost \$25,000.

**Upland, Cal.**—Contract will soon be let for paving 10th st.

**Bridgeport, Conn.**—Streets and Sidewalks Committee has recommended that the Board of Aldermen give permission to Legislature to bond city to amount of \$100,000 in order to put permanent pavements on all of streets.—Alderman H. J. Clappett, Chairman.

**Wilmington, Del.**—Court of General Sessions is considering opening of road in Brandywine Hundred.

**Washington, D. C.**—Engineer Department favors extension of Lamont st. N. W.; total cost \$12,900.

**Macclenny, Fla.**—County Commissioners, J. R. Barnes, Chairman, will improve main thoroughfare east and west across county this year.

**Pensacola, Fla.**—Geo. Roummel, Jr., will prepare plans and supervise proposed road improvement work; \$250,000 bonds sold.

**St. Augustine, Fla.**—St. Johns County is considering construction of surfaced highway from this city to Bayard, in Duval County.

**Athens, Ga.**—Mayor Rowe has recommended extension of granolithic sidewalks.

**Glencoe, Ill.**—Bids have been rejected for construction of 12,050 yds. 3-course macadam pavement, including 9,723 lin. ft. 4 to 22-in. vit. tile drain.—Windes & Marsh, 598 Birch st., Waukegan, Engineers.

**Evansville, Ind.**—Improvement of 1st ave. road is being considered by Board of County Commissioners.

**Mishawaka, Ind.**—Residents of Niles, Washington and Indiana aves. have petitioned for bitulithic pavement.

**Portland, Ind.**—Jay and Randolph County Commissioners will soon ask bids for construction of proposed connecting three-mile gravel road.

**Council Bluffs, Ia.**—Paving of East Pierce st. and McPherson ave. is being considered.

**Des Moines, Ia.**—Council has decided to pave Eighth st. with creosote wood block of tamarack or southern long-leaf pine.—Jas. L. Hanna, Mayor.

**Red Oak, Ia.**—Council has decided to grade curb and pave number of streets.—Richard Roberts, City Clerk.

**Louisville, Ky.**—Good Roads Congress has recommended passage of bill allowing over \$1,000,000 each year for construction of good roads.

**Baltimore, Md.**—Specifications for regrading of South Eutaw st., between Henrietta and Cross sts., incident to work of Balti-

more and Ohio Railroad in abolishing its grade crossings in South Baltimore, will be submitted to the Board of Awards by City Engineer B. T. Fendall.

**Colesville, Md.**—Colesville district has petitioned for construction of 2½ miles of pike on Columbia road.

**Boston, Mass.**—Mayor Fitzgerald is considering proposed widening of Pleasant st.

**Easton, Mass.**—City proposes to construct 10 miles of granolithic or other pavement sidewalks.—L. K. Rourke, Superintendent of Streets.

**Brookhaven, Mass.**—Lincoln County has voted \$150,000 of bonds for construction of about 60 miles of gravel road in District No. 1.

**Dedham, Mass.**—City has sold \$7,740 street and bridge bonds to Adams & Co.

**Fall River, Mass.**—Mayor Higgins has recommended systematic improvement of streets and more extensive street sweeping.

**Gloucester, Mass.**—Mayor Patch has recommended improvement of Main st. and continuing work on parkway along Western ave.

**Lowell, Mass.**—Mayor John F. Meehan has recommended loans for additional smooth paving and sewer work.

**New Bedford, Mass.**—Mayor Ashley has recommended widening of Mt. Pleasant st. and Tarklin Hill road.

**Northampton, Mass.**—Mayor Calvin Coolidge has recommended improvement of streets.

**Taunton, Mass.**—Mayor Woods has recommended improvement of streets in outskirts of city.

**Duluth, Minn.**—Highway Commissioner B. J. Morriset will improve 18th st. road for distance of 11 miles; road will be widened to 20 ft and macadamized.

**Duluth, Minn.**—Cost of paving Superior, Jenswold and Oneonta sts. has been estimated at \$211,415, provided bridges at 40th and 43d sts. be filled with dirt one year previous to paving.

**South Stillwater, Minn.**—Citizens have voted \$5,000 bonds for street and electric light improvements.

**Bogota, N. J.**—Mayor Wm. N. Smith has recommended macadamizing from curb to curb Larch ave. from South st. to the borough line; completion of all sidewalks and crosswalks; asphalt oiling of all the principal streets in borough; opening and macadamizing of such new streets as will be justified by increase of taxable values of abutting property of borough and immediate improvement of Trolley st.

**Camden, N. J.**—Mayor Chas. H. Ellis has recommended highway improvements in Eleventh and Twelfth Wards.

**Elizabeth, N. J.**—Mayor Alfred A. Stein has recommended abolition of Central Railroad grade crossings in downtown section of city.

**Hasbrouck, N. J.**—Mayor A. C. Austin has recommended improvement of boulevard.

**North Plainfield, N. J.**—Mayor N. B. Smalley is favorable to widening of Somerset st. from Jackson ave. north.

**Rahway, N. J.**—Mayor Wm. Howard has recommended extensive oiling of roads during year and paving of Lewis st. from living to Main st. with brick.

**Roselle Park, N. J.**—Mayor Geo. H. Horning has recommended paving of certain streets.

**South Amboy, N. J.**—Mayor Michael Welsh has recommended improvement of Broadway.

**Trenton, N. J.**—Board of Park Commissioners is considering extension of Riverside ave.

**Albany, N. Y.**—Mayor Jas. B. McEwen has recommended widening of State st. and extension of North Pearl st.

**Albany, N. Y.**—Award of good roads contracts, estimated cost \$3,750,000, has been held up by Gov. Dix, who has requested State Highway Commission to defer the opening of bids until John A. Bense, State Engineer, has examined plans and specifications and reported to him; contracts, which were for 50 or more sections of work, were to have been awarded on Jan. 9, 11 and 13.

**Binghamton, N. Y.**—Council has ordered specifications for paving Main and Leroy sts. with brick and wood block.

**Kingston, N. Y.**—Mayor Roscoe Irwin has recommended permanent paving of number of streets.

**Lackawanna, N. Y.**—Citizens have voted to pave portion of ridge road; estimated cost, with brick, \$76,000, and with stone, \$90,000.

**Lockport, N. Y.**—Mayor Jas. J. Moran has recommended repair of streets leading to main roads.

**Newburgh, N. Y.**—Cost of paving Front st. has been estimated by City Engineer Blake at \$4,400.

**New Rochelle, N. Y.**—Council has decided to curb, gutter and sidewalk Lafayette and Winthrop ave. and Brook st.

**Poughkeepsie, N. Y.**—Mayor Sague has recommended continuance of street improvements.

**Rochester, N. Y.**—Council is considering laying of asphalt pavement on Northview Terrace at cost of \$12,000; cement walks and asphalt pavement on St. Paul st., \$99,650, and asphalt pavement on Goodman and Circle sts., \$26,000.—Thos. Dramfield, City Clerk.

**Schenectady, N. Y.**—Cost of repairing State and other streets has been estimated by City Engineer J. Leland Fitzgerald at about \$100,000.

**Sharon, N. D.**—Commercial Club is interested in proposed construction of roads.

**Ashtabula, O.**—County Commissioners are considering construction of macadam road from Bunker Hill to Austinburg; distance 7 miles.

**Canton, O.**—Council has passed resolutions for paving S. Rex and High sts.

**Cincinnati, O.**—Chief Draughtsman F. L. Raseling has completed surveys for construction of proposed grade crossing viaduct.

**Cincinnati, O.**—Committee on Streets and Parks is considering eight ordinances for



paving certain alleys in neighborhood of Vine and Liberty sts. with brick.

**Toledo, O.**—Plans of the Cherry Street Business Men's Association for repaving of Cherry st. between Summit and Bancroft on the present foundation have received approval of Council Committee on Public Improvements.

**Toledo, O.**—Council has received petition to pave Detroit ave. from Central to Collingwood.

**Youngstown, O.**—Good Roads Commissioners of District No. 1 have advertised sale of \$125,000 of good roads bonds for improving a number of short stretches of road connecting up main highways in the Townships of Youngstown, Boardman, Austintown and Jackson.

**Sharpshville, Pa.**—Town will lay about 25,000 to 30,000 sq. yds. brick paving during the year.

**West Chester, Pa.**—Taxpayers of Honeybrook, East Caln, West Nantmeal, Wallace, Caln and East Brandywine Townships are urging construction of highway between Downingtown and Honeybrook boroughs by way of Glendale.

**Cranston, R. I.**—Mayor Edw. M. Sullivan has recommended \$5,000 expenditure for highways.

**Newport, R. I.**—Mayor Patrick J. Boyle has recommended repairing of roadbeds and laying of granolithic sidewalks.

**Providence, R. I.**—Mayor Henry Fletcher has recommended paving of business streets.

**Pierre, S. D.**—County Commissioners have decided to considerably improve highways during year.

**Sumter, S. C.**—Council is considering election on \$25,000 bonds for improvement of Main st.—L. D. Jennings, Mayor.

**Palestine, Tex.**—City Commissioners are considering opening of Line st.

**Taylor, Tex.**—Board of Aldermen is considering purchase of road roller.

**Norfolk, Va.**—City Engineer W. T. Brooke has been requested by Board of Control to ascertain cost of laying smooth pavement at intersection of Boush and Freemason sts.

**Portsmouth, Va.**—Local Board of Seventh Ward has decided to make permanent repairs to South st.

**Portsmouth, Va.**—If city will agree to improve Glasgow st. to a permanent extent as far as present limits of city, Permanent Road Improvement Commission of Norfolk County will extensively improve continuation of street in county territory.

**Centralia, Wash.**—City will pave 10 blocks in spring; cost \$70,000.

**Olympia, Wash.**—Resolutions have been presented before State Highway Board for State aid road in Benton County from Byron to Kennick passing through Prosser, a distance of 40 miles, and for one in Columbia County from Hawksville to Marango, about 20 miles.

**Seattle, Wash.**—Council has passed resolutions for paving three streets and filling Railroad ave.

**South Bend, Wash.**—Council is considering paving of main business street.

**Huntington, W. Va.**—City Commissioners are planning to expend \$170,000 on street improvements during coming summer.

**Sheboygan, Wis.**—Board of Public Works has recommended paving of North 6th and other streets.

**Fergus, Ont., Can.**—Ratepayers have passed by-law for permanent sidewalks.

## CONTRACTS AWARDED

**Los Angeles, Cal.**—Paving Evergreen ave., to Frank Gillespie, about \$13,206.

**San Bernardino, Cal.**—Paving E. st. from First to Mill, to Ernest Frenzle, Redlands, 9.6c. per sq. ft. for oiled macadam and 2.5c. per sq. ft. for oiled surface; total cost will be \$10,000.

**Stockton, Cal.**—Paving nine streets with macadam, to O. Moreau & Sons, city.

**Denver, Col.**—Grading streets and constructing concrete curb and gutter in East Denver Improvement District No. 6, bidders all of Denver: To Westcott-Doan Investment Co., \$45,515; other bidders: The Denver and Pueblo Construction Co., \$46,333; the Municipal Construction Co., \$49,823; the Commonwealth Construction Co., \$49,982; J. Fred Roberts, \$50,806; Thos. J. Tuilly, \$51,497.

**Jacksonville, Fla.**—By County Commissioners: Paving with brick, to Fred Ogram, \$8,943; shell paving on 64th st., to D. M. Baker, \$6,062.

**Jacksonville, Fla.**—Grading, paving and curbing the Panama road with brick, to Fred Ogram, \$8,943.25; grading 64th st., to C. F. Slater, \$612.97; shell paving 64th st., to D. M. Baker, \$6,062.27; grading Lake Shore blvd., to J. Collier Brown, \$2,369.63.

**Chicago, Ill.**—Paving, to following bidders: F. K. Shobe Co., 524 W. 63d st.; Jno. A. McGarry & Co., 1001 Security Bldg.; Parker Washington Co., 920 Chamber of Commerce Bldg.; R. F. Conway Co., 720 Chamber of Commerce Bldg.; and Jas. A.

Sackley Co., 307 Chamber of Commerce Bldg.

**Glencoe, Ill.**—Paving with macadam from plans of Engineers Windes & Marsh, 598 Birch st., Winnetka, to John A. McGarry & Co., 1001 Security Bldg., Chicago, as follows: 21,400 sq. yds. macadam, avenue depth 9½, \$1.02½; 12,900 cu. yds. excavation, 30c.; 10,400 sq. yds. of sod, 28c.; 694 sq. yds. paving brick cross walks, \$1.85; 82 concrete end curbs, complete, \$5; 73 catch basins, 260-lb. covers, \$29; 4 manholes, 260-lb. covers, complete, \$28; 4,280 lin. ft. of 4-in. drain, 4 ft. deep, 26c.; 6,460 lin. ft. of 6-in., 36c.; 3,892 lin. ft. of 8-in., 40c.; 960 lin. ft. of 10-in., 49c., and 150 lin. ft. of 12-in., 5 ft. deep, \$1, and 1,200 lin. ft. of 30-in. drain, 6 ft. deep, \$2.80; total, \$41,349; Jas. Cape & Sons Co., 468 Water st., Racine, Wis., bid for this work \$41,917.

**Covington, Ind.**—To Fred Cunningham, Bloomfield, to construct gravel road, \$10,480.

**Greencastle, Ind.**—By Commissioners of Putnam County for construction of a gravel road in Greencastle and Monroe Townships, to Mahoney & Allen, city.

**Logansport, Ind.**—To Frank Justice for constructing Harvey gravel road between Cass and White Counties, by County Commissioners, \$8,900.

**Wichita, Kan.**—Paving with brick portions of Water, 3d and 1st sts., to H. L. Miles, \$1.99 per sq. yd.

**Springfield, Mo.**—Paving as follows: Elm st. with brick, to J. C. Likes, \$2.24 per sq. yd.; Mt. Vernon and Commercial sts., with Hassam, to Hackliffe-Gibson Construction Co., \$1.75 per sq. yd.

**Elizabeth City, N. C.**—Asphalt street paving, to J. L. Robinson, Baltimore, Md., \$1.64 per sq. yd.; paving Water st. with Belgian blocks, to J. L. Lawson, Norfolk.

**Cleveland, O.**—Grading and loaming Parkway, Harvard to Washington road, to Alex. Tubman & Wm. Burkhardt, 2153 Fairmount st.

**Circleville, O.**—To James T. Lynch, of Flint, Mich., for paving streets, \$73,052.

**Marion, O.**—Paving Marion and Agosta pike, to D. C. O'Connell, \$5,950.

**Bartlesville, Okla.**—To Kraull & Co., for paving East 3d st., including curbing, guttering, grading and laying of sewers, \$2.38 per sq. yd.

**East Providence, R. I.**—Supplying 132,000 granite paving blocks, to New England Granite Co.; 50,000, to John Catto; both contracts are to be filled at Westerly quarries and 100,000 will be supplied at \$60 per M and 82,000 at \$59 per M.

**Portsmouth, Va.**—To E. Parks Lindsay, city, by Norfolk County Permanent Road Improvement Commission, for construction of macadamized boulevard from Cross roads in Tanner's Creek magisterial district, to Ocean View, \$16,163; other bidders: E. J. McGuire, Norfolk, \$16,270, and Dalby, Nottingham & Co., Norfolk, \$16,297.20.

**Olympia, Wash.**—By State Highway Board, for four miles of road, running east from Tomasket in Okanogan County, known as road 92, to Wood & Rubert, about \$5,000.

## BIDS RECEIVED

**Los Angeles, Cal.**—By County Board of Supervisors for improving El Monte-Cornia Road, 9.05 miles long, requiring 28,820 tons of oiled macadam: A. C. St. John, \$40,348; Oiled Macadam Paving Co., \$44,382, and F. E. Brander, \$41,313.

**Hartford, Conn.**—Construction of State road work: Town of Sterling, three sections gravel-telford road, on the road leading from the Sterling railroad station to the Rhode Island State line, (a) first section, 5,810 lin. ft., (b) second section, 6,268 lin. ft., (c) third section, 3,442 lin. ft., (d) telford, (e) rubble drain: Ahern Bros., Norwich, (a) \$6,730, (b) \$8,720, (c) \$7,033, (d) 60c., (e) \$1; Roger Kennedy, Middletown, (a) \$8,541, (b) \$9,778, (c) \$12,180, (d) 60c., (e) \$1.25; A. Vito & Co., Thompson, (a) \$8,100, (b) \$10,730, (c) \$7,380, (d) 75c., (e) \$1.25; O. T. Benedict, Pittsfield, Mass., (a) \$7,500, (b) \$14,350, (c) \$8,250, (d) 75c., (e) 55c.; A. D. Bridge's Son Co., Hazardville, (a) \$9,607, (b) \$13,455, (c) \$11,700, (d) 75c., (e) \$1; Town of Canton, 6,123 lin. ft. gravel-telford road, including one reinforced concrete culvert, 8-ft. span, on Indian Hill section: B. D. Pierce, Jr., Co., Bridgeport, lump sum, gravel \$18,000, telford 75c. per lin. ft., rubble drain 90c. per lin. ft.; William Maloney, West Hartford, \$18,027, 60c.; C. A. Rossi, Torrington, \$18,065, 65c.; Joseph Mascetti, Torrington, \$11,266, 50c.; F. Arrigoni & Bro., Durham, \$27,492, 50c.; \$1.25; Pierson Engineering and Construction Co., Bristol, \$16,838, 50c.; \$1.25; Sternberg & Cadwell, West Hartford, \$13,899, 50c.; \$1.25; C. W. Tyron, Meriden, \$18,063, 50c.; \$1.25; Town of Brooklyn, 5,050 lin. ft. macadam-telford road, on Main st.: Roger Kennedy, Middletown, \$1.79 per lin. ft. for macadam, \$2.30 per lin. ft. for telford, \$1 per lin. ft. for rubble drain, 65c. per sq. yd. for cobble gutters; C. T. Bene-

dict, Pittsfield, Mass., \$2.53, \$3.23, \$1, 75c.; Tony Leo, Thompson, \$2.89, \$3.74, \$1.05, 89c.; A. D. Bridge's Son Co., Hazardville, \$2.57, \$3.27, \$1, 60c.; Town of Preston, 7,825 lin. ft. graded telford road, including one reinforced concrete arch culvert, 8-ft. span on the road from Sterling station to the Rhode Island State line, (a) grading, lump sum, (b) telford, (c) rubble drain, (d) rubble walls: Ahern Bros., Norwich, (a) \$19,590, (c) \$1, (d) \$6; Roger Kennedy, Middletown, (a) \$14,000, (b) 60c., (c) \$1, (d) \$5.50; O. T. Benedict, Pittsfield, Mass., (a) \$19,995, (b) 75c., (c) 96c., (d) \$5.95; William B. Wilcox, Norwich, (a) \$21,000, (b) 70c., (c) \$1, (d) \$6; Clayton T. Curtiss, Glastonbury, (a) \$14,004, (b) 90c., (c) \$1.10, (d) \$5; Tony Leo, Thompson, (a) \$15,870, (b) 84c., (c) \$1.19; Tony Carboni, Norwich, (a) \$21,235, (b) \$3.30, (c) \$1, (d) \$3.25; Eldredge Construction Co., Mystic, (a) \$13,728, (b) \$2.18, (c) 90c., (d) \$4; A. D. Bridge's Son Co., Hazardville, (a) \$18,553, (b) 60c., (c) \$1, (d) \$6; Town of New Fairfield, four sections graded telford road, aggregating 160 lin. ft., including one I-beam reinforced concrete culvert, (a) first section, 1,845 lin. ft., (b) section, 1,000 lin. ft., (c) 630 lin. ft., (d) 690 lin. ft., (e) lump sum price for four sections, (f) telford, (g) rubble drain: Goodman, Trumbull, Litchfield, (a) \$4,495, (b) \$2,966, (c) \$1,176, (d) \$1,140, (e) \$9,776.40, (f) 90c., (g) \$1.25; Joseph Mascetti, Torrington, (a) \$2,717, (b) \$530, (c) \$450, (d) \$2,000, (e) \$6,300, (f) 60c., (g) 60c.; Norris Hatch, New Fairfield, (e) \$10,800; E. G. Pardee, Bethany, (a) \$10,000, (b) \$2,500, (c) \$2,000, (d) \$2,500, (e) \$17,000, (f) 65c., (g) \$1; B. N. Beard Co., Shelton, (a) \$12,240, (f) 65c., (g) \$1; Town of Litchfield, 3,100 lin. ft. graded telford road, and Town of Harwinton, 732 lin. ft. graded telford road; road for elimination of two dangerous grade crossings, East Litchfield; work involves much heavy cutting and filling; both sections: The B. D. Pierce, Jr., Co., Bridgeport, \$11,000 for entire grading, 85c. per lin. ft. for telford, 85c. per lin. ft. for rubble drain: A. Vito, Thompson, \$16,861, 90c.; \$1.25; F. Arrigoni & Bro., Durham, \$17,081, 99c.; \$1; John de Michael & Bro., Torrington, \$15,902, 50c.; \$1; William Maloney, West Hartford, \$14,178, 60c.; 75c.; O. T. Benedict, Pittsfield, Mass., \$13,987, 60c.; 75c.; Pierson Engineering and Construction Co., Bristol, \$11,000, 75c.; \$1; Joseph Mascetti, Torrington, \$11,266, 50c.; 55c.; Sternberg & Cadwell, West Hartford, \$10,900, 50c.; \$1.25; C. W. Tyron, Meriden, \$11,074, 50c., \$1.

**Mt. Vernon, N. Y.**—Paving East Lincoln ave., Louis Petrillo, new curb, 80c.; old curb, 43c.; asphalt block, \$2.30; brick pavement, \$1.68; brick pavement relaid, 25c.; new flag walks, 65c.; Jas. Piro, new curb, 65c.; old curb, 25c.; brick pavement, \$2.25; relaying brick pavement, 10c.; new sidewalks, 70c.; old sidewalks relaid, 10c.; new brick pavement, present foundation, \$1.63; Frank Nordone, new curb, \$1; old curb, 50c.; asphalt pavement on 6-in. concrete foundation, \$2.95; asphalt on cement foundation, \$2.75; brick pavement, \$2.45; brick pavement relaid, 10c.; brick pavement on present foundation, \$1.59; sheet asphalt, \$2.60; sheet asphalt on 2-in. concrete foundation, \$2.50; new flag sidewalks, \$1; old flag sidewalks relaid, 15c.; Charles Motolla, new curb, 70c.; old curb, 35c.; asphalt on 6-in. concrete foundation, \$5; asphalt on 2-in. cement foundations, \$4.50; brick pavement, \$2.50; new flag sidewalks, 60c.; brick relaid, \$1.05; bricks on present foundation, \$1.55; sheet asphalt on 6-in. concrete foundation, \$5; sheet asphalt on 2-in. cement foundation, \$4.75; new flag sidewalks, 60c.; old flag sidewalks relaid, 10c.; Barber Asphalt Co., new curb, \$1.34; old curb, 74c.; asphalt block, \$3.28½; asphalt block on 2-in. cement foundation, \$2.51½; brick pavement relaid, 35c.; sheet asphalt on 6-in. concrete foundation, \$2.94; sheet asphalt on 2-in. cement foundation, \$2.20½; new flags, 90c.; old flags, 25c.; James Garofano, new curb, 75c.; old curb, 20c.; brick pavement, \$2.75; old brick pavement relaid, 10c.; new flags, 65c.; old flags, 20c.; new brick pavement on present foundation, \$1.69; Charles Sillery, new curb, 75c.; old curb, 30c.; brick pavement on 6-in. concrete foundation, \$2; brick pavement relaid, 50c.; brick pavement on present foundation, \$1.64; new flags, \$1; old flags, 30c.; Harlem Contracting Co., new curb, 78c.; old curb, 30c.; asphalt on 6-in. concrete foundation, \$2.78; asphalt on 2-in. cement foundation, \$1.88; brick pavement relaid, 25c.; new flag walks, 85c.; old flag walks, 18c.; Sabino Guarino, new curb, 75c.; old curb, 15c.; brick pavement on 6-in. concrete foundation, \$2.20; brick pavement relaid, 10c.; new sidewalks, 60c.; old sidewalks, 10c.; new brick pavement on present foundation, \$1.71.

**Akron, O.**—Paving sections of Akron Hudson road: Section 1, E. McShaffrey & Son, city, \$36,682; Section 3, Willes & Davidson, city, \$63,264; Section 5, Paul & Henry, Barberton, \$106,652.

**Atlanta, Ga.**—Constructing Peachtree Creek disposal plant: To (a) Chester A. Dady, Brooklyn, N. Y.; other bidders: (b) Nichols Constr. Co., Atlanta; (c) Piedmont Constr. Co., Atlanta; (d) Hard & Worm, New York, N. Y.; (e) Municipal Engr. & Constr. Co., Chattanooga, Tenn.

	a.	b.	c.	d.	e.
30,000 cu. yd. earth excavation.....	\$0.73	\$0.32	\$0.35	\$0.476	\$0.50
8,000 cu. yd. rolled embankment.....	.30	.50	.50	.365	.55
2,000 rock excavation.....	1.00	1.00	2.00	.80	2.40
Grit chamber (lump sum).....	2,750.00	1,942.58	2,100.00	1,435.00	2,023.00
Settling tanks (lump sum).....	39,200.00	67,622.30	59,450.00	56,707.00	59,562.00
Roughing filters (lump sum).....	17,500.00	14,032.68	13,000.00	14,000.00	11,759.00
Machine screen house (alternative).....	17,500.00	15,889.85	14,850.00	14,000.00	16,181.00
Dosing tanks (lump sum).....	5,000.00	6,604.01	5,000.00	9,163.00	4,174.00
Sprinkling filters (lump sum).....	83,838.00	109,637.30	105,700.00	99,877.00	128,519.00
Sludge bed (lump sum).....	9,500.00	6,497.15	4,400.00	6,160.00	6,410.00
350 ft. 48-in. pipe.....	5.30	7.00	4.25	5.03	4.70
950 ft. 42-in. pipe.....	4.50	5.50	4.00	4.20	3.96
50 ft. 36-in. pipe.....	3.50	4.00	3.00	3.86	3.40
200 ft. 30-in. pipe.....	3.00	3.00	2.00	2.99	2.76
550 ft. 24-in. pipe.....	2.50	2.00	1.00	1.78	2.10
900 ft. 8-in. pipe.....	.25	.20	.20	.23	.25
100 ft. 6-in. pipe.....	.20	.20	.15	.16	.13
100 cu. yd. extra concrete.....	5.00	10.00	8.00	12.00	10.00
5,000 lb. extra steel.....	.05	.04	.025	.044	.04
Laboratory building (lump sum).....	2,000.00	2,734.70	3,000.00	2,800.00	1,970.00
Totals.....	\$195,363	\$235,646	\$208,657	\$208,105	\$247,344

## SEWERAGE

**Concord, Cal.**—Plans will soon be prepared for installation of complete sewer system.

**Los Angeles, Cal.**—Bids will be received about Jan. 15 by H. B. Ferris, Secretary Board of Public Works, for sewers in Wilmington district.—Homer Hamlin, City Engineer.

**Fort Morgan, Col.**—City Engineer H. P. Oliver has prepared plans for installation of sewer in Fulton Heights; cost \$7,328.

**Palatka, Fla.**—City will at early date lay 4,000 lin. ft. 24-in. storm sewer.

**Sarasota, Fla.**—Issuance of \$20,000 bonds for sewerage and water works is being urged.

**Athens, Ga.**—Mayor Rowe has recommended extension of sewerage facilities.

**Danville, Ind.**—Citizens will vote Feb. 2 on installation of sanitary sewer.

**Gary, Ind.**—Bids will be received by the Board of Public Works for construction of sewers: 3,120 ft. of 60-in. brick sewer, 2,055 lin. ft. of 36-in. brick sewer, 3,160 lin. ft. of 54-in. brick sewer, 3,320 lin. ft. 20-in. pipe sewer, 3,900 lin. ft. of 8-in. pipe sewer, 6,540 lin. ft. of 24-in. brick sewer, 4 gutter inlets, 5 catch basins, 12 manholes.—Harry G. Moose, City Clerk.

**Madisonville, Ky.**—Engineers Alvord & Burdick, 140 Dearborn st., Chicago, have been selected to prepare plans for \$60,000 sewerage system and purification plant.

**Lowell, Mass.**—Mayor John F. Meehan has recommended loans for additional sewer and smooth paving work.

**New Bedford, Mass.**—Mayor Ashley has recommended asking Legislature for permission to issue \$300,000 bonds for new sewers.

**Gordon, Neb.**—Citizens will vote Jan. 17 on \$4,600 bonds for installation of sewer system.

**Bridgeton, N. J.**—Council has declared contract for building sewerage system forfeited and has instructed Engineer Clyde Potts to take necessary steps to have work finished either by city doing it itself or by new contract.

**Caldwell, N. J.**—Mayor John Espy has recommended improvement to sewage facilities.

**Hasbrouck, N. J.**—Mayor A. C. Austin is favorable to establishment of sewer system.

**Hackensack, N. J.**—Mayor Chas. W. Ball has recommended that matter of sewage disposal be taken up in near future.

**Plainfield, N. J.**—Mayor W. V. Moy has recommended increasing of sewage disposal beds.

**East Aurora, N. Y.**—Installation of \$100,000 sewer system is being considered.—F. W. King, Buffalo, Engineer.

**Niagara Falls, N. Y.**—Bids will be received about Jan. 17 for sewer in Ashland ave.

**New York, N. Y.**—Bids opened Dec. 23 by Cyrus C. Miller, President Bronx Borough, for constructing sewers in Walker and Benson aves. and other streets and avenues: (a) Vinton Contr. Co., 141 E. 125th st., \$75,689; (b) W. F. Murray, 215 W. 125th st., \$79,229; (c) L. J. Moran, 562 Burnside ave., \$71,898; (d) Geo. M. Dunn, \$64,593; (e) Leahy Contr. & Constr. Co., 1446 Prospect ave., \$66,934; (f) Stalwart Constr. Co., 5186 Bway., \$76,049; (g) Melrose Contr. Co., 147 E. 125th st., \$73,380; (h) Anita Constr. Co., 3975 Marion ave., \$66,927; (j) Alamo Contr. Co., 215 W. 125th st., \$67,480, and (k) Armanna & Lyons, 8 Van Cortlandt ave., \$68,448.

	a.	b.	c.	d.	e.	f.	g.	h.	i.	k.
667 lin. ft. concrete sewer, 32x44 in.....	\$12.00	\$9.00	\$10.00	\$8.00	\$9.00	\$10.00	\$10.00	\$8.00	\$10.00	\$9.48
91 lin. ft. pipe sewer, 30 in.....	8.00	6.00	7.00	5.00	6.00	7.50	8.00	5.00	7.00	5.78
1,922 lin. ft. pipe sewer, 24 in.....	5.00	6.00	6.00	4.00	5.00	5.50	6.00	4.50	5.00	4.62
475 lin. ft. pipe sewer, 20 in.....	5.00	6.00	5.00	4.00	4.50	4.50	5.00	4.00	4.25	4.48
1,143 lin. ft. pipe sewer, 18 in.....	4.00	4.50	3.75	4.00	3.50	3.50	3.00	4.00	4.00	4.23
2,145 lin. ft. pipe sewer, 15 in.....	3.50	4.00	3.00	3.00	3.00	3.25	3.00	4.00	3.50	4.13
7,452 lin. ft. pipe sewer, 12 in.....	2.75	2.50	2.75	2.70	2.75	3.00	3.00	3.15	2.80	2.50
1,520 spurs for house connections.....	3.50	.50	.....	.01	.20	1.00	.01	.50	1.00	1.00
138 manholes, complete.....	55.00	90.00	80.00	52.00	55.00	50.00	65.00	50.00	40.00	60.00
34 receiving basins, complete.....	160.00	190.00	150.00	160.00	175.00	160.00	175.00	150.00	140.00	150.00
1,100 cu. yd. rock excavation.....	3.50	2.75	1.00	2.50	1.00	4.00	3.20	1.00	1.00	1.50
25 cu. yd. Class B concrete.....	6.00	6.00	4.00	5.00	5.00	10.00	6.00	.01	7.00	7.00
100 M. ft. timber for foundations and sheet-piling, left in place.....	.....	30.00	20.00	25.00	25.00	40.00	10.00	1.00	30.00	15.00
.000 lb. 1/2-in. steel bars in foundations.....	.05	.05	.03	.03	.08	.05	.05	.....	.03	.04
100 lin. ft. 12-in. drain pipe.....	.....	.80	1.00	.50	.60	1.00	2.00	.01	1.75	.01

**Rome, N. Y.**—Mayor Kessinger will secure expert advice on construction of proposed sewage disposal plant.

**Wilmington, N. C.**—Plans for a complete sewerage system have been submitted to State Board of Health by local Sewerage Commission; cost about \$180,000.

**Akron, O.**—E. D. Bradberry, Columbus, will prepare plans and specifications for proposed sewage disposal plant.

**Bellefontaine, O.**—Bids will be received Jan. 30 for \$75,000 sewer bonds.

**Bryan, O.**—Village is considering installation of sanitary sewer system, including disposal plant.—Riggs & Sherman, The Nashby, Toledo, Engineers.

**Hominy, Okla.**—Citizens have voted \$36,000 sewer and water bonds.

**Oklahoma City, Okla.**—Citizens have voted \$15,000 for enlarging sewer system in downtown district.

**Altoona, Pa.**—Department of Health has recommended completion of Fourth District sewer.

**Grove City, Pa.**—Bids will be received about March 1 for construction of sewers at cost of about \$15,000.—L. E. Burnside, Borough Engineer.

**Pottstown, Pa.**—Council has defeated motion to employ engineer to make survey for proposed sewer system demanded by State Health Commissioner Dixon.

**Providence, R. I.**—Mayor Henry Fletcher has recommended extension of sewage pumping plant.

**Watertown, S. D.**—Council is considering construction of sewer on 2d st.

**Seattle, Wash.**—Board of Public Works has approved specifications for trunk sewer in Virginia st.

**La Crosse, Wis.**—City will lay number of sewers during coming year.

**Goderich, Ont., Can.**—Ratepayers have passed by-law to raise \$26,000 for building storm sewer.

## CONTRACTS AWARDED

**Trinidad, Col.**—Building sanitary sewer on Chestnut st., to John McEwan, 86c. per lin. ft. for excavation; \$46 each for manholes and \$10 for flushers.

**Washington, D. C.**—Sewer work: Anacostia, item 1, excavation; item 2, sewer brick and masonry; item 3, 12-in. pipe; To Geo. Hyman, city, item 1, 49c.; item 2, \$13; item 3, 54c.; Bureau of Engraving, sewer A, item 1, excavation; item 2, sewer brick masonry; item 3, 24-in. pipe; item 4, 21-in. pipe; sewer B, item 1, excavation; item 2, sewer brick masonry; item 3, 24-in. pipe, to same bidder, sewer A, item 1, 25c.; item 2, \$13; item 3, 90c.; item 4, 90c.; sewer B, item 1, 25c.; item 2, \$13; item 3, 90c.; Langdon, item 1, excavation; item 2, sewer brick masonry; item 3, vit. brick masonry; item 4, concrete masonry D; item 5, 6-in. subdrain pipe; item 6, 24-in. pipe; item 7, 21-in. pipe; to same bidder, item 1, 49c.;

item 2, \$13; item 3, \$20; item 4, \$7; item 5, 30c.; item 6, \$1.05; item 7, 95c.; Tenleytown, item 1, excavation; item 2, sewer brick masonry; item 3, 15-in. pipe; item 4, 12-in. pipe; item 5, 10-in. pipe; to W. F. Brenizer Co., city, item 1, 50c.; item 2, \$13.50; item 3, 68c.; item 4, 60c.; item 5, 55c.; Florida ave., item 1, excavation; item 2, brick masonry; item 3, concrete masonry D; item 4, 6-in. subdrain pipe; to same bidder item 1, 80c.; item 2, \$21; item 3, \$7; item 4, 30c.; Rock Creek, item 1, excavation; item 2, sewer brick masonry; item 3, vit. brick masonry; item 4, concrete masonry B; item 5, concrete masonry C; to same bidder, item 1, \$24; item 2, \$20; item 3, \$25; item 4, \$15; item 5, \$14.

**Keewatin, Minn.**—To H. L. Bartlett Co., Virginia, for installing storm and sanitary sewers.

**Marble, Minn.**—To H. L. Bartlett Co., Virginia, for installing sanitary sewers.

**St. Louis, Mo.**—Constructing sewer in N. Harlem Joint district, to Herman Construction Co., 444 S. Theresa ave., \$326,447.

**Hackensack, N. J.**—Installing sewers in Richmond and Ethelbert aves., to Union Construction Co.

**Chester, Pa.**—Sewer work, to Henry Pritchard, Central ave., \$1,785.50; Flower st., \$2,030; Ward st., \$448.10; 9th st., \$344.20; Edwards st., \$481.50; Pennell st., \$669; Lloyd st., \$1,335; to John Hanna & Sons, Academy st., \$350.90; Edgmont ave., \$505.40; 22d st., \$400.34; 20th st., \$1,768.30; 5th st., \$381.80; Broomall st., \$370.50; Madison st., \$275.80; Front st., \$375.66; Potter st., \$1,475.75; Chestnut st., \$1,631.50; No. 1, inlets, to Henry Pritchard, \$88 each; No. 2, inlets, to J. & J. Hanna, \$86.89; grate top inlets, \$83.39; No. 3, inlets, \$71.17; grate top inlets, \$70.27; to John J. Williams Co., to build 36-in. iron pipe extension to Welsh st. sewer, \$3,995.

**Duquesne, Pa.**—Building sewer, to Wm. Jones, Carnegie, \$37,500.

## BIDS RECEIVED

**Washington, D. C.**—Construction of intercepting sewer on Rock Creek, between P st. and Military road, section 1, between P st. and Massachusetts ave.: (1) W. F. Brenizer Co., city, (2) E. G. Gummel, city, (3) Alfonso A. Alfieri, Morgantown, W. Va., (4) Whiting & Middleton Construction Co., Baltimore, (5) B. F. Sweeten & Sons, city; ordinary excavation (1) 77c., (2) 55c., (3) 63c., (4) \$2.29, (5) \$1.50; brick masonry, (1) \$14, (2) \$14, (3) \$10, (4) \$20, (5) \$20; vit. brick masonry, (1) \$22, (2) \$20, (3) \$19.47, (4) \$23.75, (5) \$30; concrete masonry, "D," (1) \$2.25, (2) \$7, (3) \$7.73, (4) \$8.03, (5) \$9.

**Baltimore, Md.**—Sanitary Contract No. 61, lateral sewers in District No. 40-C and Storm Water Contract No. 11; Sanitary Contract No. 61-B, F. Sweeten & Son, 820 Sharp st., \$92,090; Wm. McCarthy & Co., 1007 American Bldg., \$94,737; Irwin Bros.,



Greenville, O., \$102,088; David Peoples, 60 Knickerbocker Bldg., \$103,658; W. H. & C. F. Thompson, \$127,283; Ryan & Reilly, American Bldg., \$129,635; the Whiting-Middleton Construction Co., Sexton Bldg., \$138,293; Storm Water Contract No. 11, Wm. McCarthy & Co., 1007 American Bldg., \$14,584; B. F. Sweeten & Son, 820 Sharp st., \$15,297; W. H. & C. F. Thompson, \$15,845; Shreve & Caple, 848 Equitable Bldg., \$16,113; the Whiting-Middleton Construction Co., Sexton Bldg., \$16,469; David Peoples, 60 Knickerbocker Bldg., \$18,371; Ryan & Reilly, American Bldg., \$19,457; McCay Engineering Co., 9 East Lexington st., \$22,378.

## WATER SUPPLY

**Modesto, Cal.**—Trustees Thede and Knowles have been appointed as a committee to arrange with Engineer Clark to change plans for water works from underground to an overhead system, including overhead tank of 80,000 gals. capacity on a tower 100 ft. high.

**Washington, D. C.**—District Commissioners have ordered laying of additional water mains in number of streets.

**Daytona, Fla.**—Council is considering establishment of water softening plant.

**Ocala, Fla.**—Cost of installing water system has been estimated at \$80,000; issuance of bonds being considered.

**Sarasota, Fla.**—Issuance of \$20,000 bonds for water works and sewerage is being urged.

**Athens, Ga.**—Mayor Rowe has recommended installation of plant for hypochloride of lime treatment of water as suggested by City Engineer Burnett.

**Joliet, Ill.**—City Engineer Stevens is preparing plans for pumping station to be built at west side well.

**Mattoon, Ill.**—City will construct \$20,000 filtration system.

**Wheaton, Ill.**—City will install pumping outfit, including concrete storage reservoir, engines and central well.—A. L. Webster, City Engineer.

**Vincennes, Ind.**—Vincennes Water Co. will purchase quantity of water mains.

**Boone, Ia.**—Bids will be received Jan. 18 for bonds for additions and extensions to water works.—K. C. Kastberg, City Engineer.

**Goodland, Kan.**—County Commissioners have voted \$10,000 to install artesian well.

**Patterson, La.**—City is considering construction of water works; power to be furnished by F. B. Williams Cypress Co.

**Beverly, Mass.**—Mayor Fred A. Dodge has recommended investigation into manufacture of cement lined pipe for water department.

**Woburn, Mass.**—Mayor Hugh D. Murray has recommended improvement of water system at cost of \$200,000.

**Worcester, Mass.**—Mayor Jas. Logan has recommended immediate action to develop Assabumskit water system.

**Flint, Mich.**—Wm. G. Clark, Toledo, Consulting Engineer, will supervise construction of proposed water works.

**Grand Rapids, Mich.**—New pump will be purchased by Board of Public Works and be installed in new city pumping station as reserve engine.

**Holland, Mich.**—Board of Public Works is considering construction of \$12,000 pumping station at 21st st.

**Duluth, Minn.**—Council has passed ordinance for election in February on \$300,000 water and light bonds.

**St. Paul, Minn.**—Assembly Committee on Streets has decided to report favorably on the resolution authorizing Water Board to issue \$100,000 bonds for improvements and extensions.

**Worthington, Minn.**—Citizens have voted \$12,000 bonds for extension of water mains and erection of tank.

**Plattsburg, Mo.**—City has selected Rollins & Westover, Beals Bldg., Kansas City, to prepare preliminary plans for water works and electric light plant; cost \$50,000.

**Battle Creek, Neb.**—Citizens will vote Jan. 15 on \$10,000 bonds for construction of water works.

**Gordon, Neb.**—Citizens will vote Jan. 17 on \$12,000 bonds for installation of water works system.

**Omaha, Neb.**—South Omaha Water Co. will erect storage reservoir, capacity 4,000,000 gals., in spring.

**Caldwell, N. J.**—Mayor John Espy has recommended municipal water supply.

**Elizabeth, N. J.**—Mayor Alfred A. Stein has recommended municipal ownership of water works.

**Glen Ridge, N. J.**—Mayor Giles W. Read has recommended municipal ownership of water system.

**Lyndhurst, N. J.**—Citizens have voted to issue \$25,000 bonds for extending water system.—J. F. Woods, Township Clerk.

**North Plainfield, N. J.**—Mayor N. B. Smalley has recommended installation of public water plant.

**Perth Amboy, N. J.**—Water Commissioners are considering installation of 24 or 30-in. water main to connect city with water works at Runyon; cost about \$70,000.

**Plainfield, N. J.**—Mayor W. V. Moy has recommended installation of municipal water works.

**South Amboy, N. J.**—Mayor Michael A. Welsh has recommended necessity of providing adequate supply of water.

**Hornell, N. Y.**—Citizens have voted \$100,000 for water storage reservoir.

**Utica, N. Y.**—Consolidated Water Co. will install additional sterilization plant.

**Cincinnati, O.**—Plans for sterilization plant at the California filtration station have been completed and work on the construction will soon be begun; Water Works Superintendent Laidlaw has estimated cost at \$6,500.

**New Carlisle, O.**—City has sold \$20,000 bonds for construction of water works system.

**Sylvania, O.**—Village is considering construction of water works.—Riggs & Sherman, The Nasby, Toledo, Engineers.

**Youngstown, O.**—Council has passed ordinance directing Director of Service to expend \$23,000 for water works supplies.

**Delaware, Okla.**—Citizens have voted \$25,000 bonds for construction of water works.

**Hominy, Okla.**—Citizens have voted \$36,000 water and sewer bonds.

**Toledo, Ore.**—Engineer D. J. Sidney will make preliminary survey for proposed water works system; \$25,000 available.

**Lebanon, Pa.**—Water Commissioners have recommended duplication of machinery at Hammer Creek pumping station, erection of dwelling house at Hammer Creek for engineers, building of fourth dam at South Mountain watershed and laying of terra cotta pipes to carry water of streams in vicinity of dam No. 3.—E. H. Shroff, Superintendent.

**Somerset, Pa.**—Council has sold \$10,000 water bonds to Farmers' National Bank.

**Wyomissing, Pa.**—Borough is considering issuance of \$60,000 bonds for water works and electric light plant.

**Providence, R. I.**—Mayor Henry Fletcher has recommended storage reservoir for city's water supply.

**Pierpoint, S. D.**—Installation of water works system is being urged.

**Etowah, Tenn.**—Prices are desired by Mayor T. F. Peck on deep well pumps.

**El Paso, Tex.**—Installation of additional engine and pump to force water into city from Mesa pumping plant and sinking of eight new wells 14 in. in diameter is proposed by Superintendent of Water Works W. E. Race.

**Palacios, Tex.**—City has asked bids from private parties for constructing and operating water works.

**Polytechnic, Tex.**—City is considering construction of \$30,000 water works system.—John Mead, Engineer.

**Trenton, Utah.**—City is considering installation of water works system.

**Seattle, Wash.**—Council has passed resolutions for laying water mains in 12th ave N. W. and 25th ave N.

**Lethbridge, Alta., Can.**—Preliminary surveys have been made for gravity water system; cost \$880,000.—C. W. Arnold, City Engineer.

**Harrison, Ont., Can.**—Citizens have passed by-laws for installation of water works.

**North Vancouver, B. C., Can.**—City will expend about \$40,000 during year in purchasing c.-i. pipe for proposed extensions.

**St. Catharines, Ont., Can.**—Ratepayers have voted \$180,000 for installation of water main to increase pressure and supply.

## CONTRACTS AWARDED

**San Bernardino, Cal.**—To J. Wm. Smith, for drilling well near Perris reservoir site, \$5,600.

**Winnetka, Ill.**—Laying water mains on Laurel ave., Fig and Lake sts., to C. T. Partlett, 827 Greanleaf st., Evanston, \$1,747.—Windes & Marsh, 598 Birch st., Engineers.

**Mitchell, Ind.**—Building water system, to S. S. Royland.

**Ft. Cook, Neb.**—Reservoir and well at post, to J. W. Turner Development Co., Des Moines, Ia., \$18,500.

**Lincoln, Neb.**—Furnishing water pipe, to American Cast Iron Pipe Co., of Birmingham, Ala.: 205 tons 16 and 12-in. pipe, \$23.55 per ton; 150 tons 6-in. at \$23.60, and 75 tons of 4-in., \$24.95 and 5 tons specials, 24c. per lb.

**Newark, N. J.**—Laying pipe line for fire protection at Hospital for Contagious Diseases, Soho, to Wm. H. Jacobson, \$1,451.06.

**Oriskany Falls, N. Y.**—Construction of a gravity system of water works, consisting of 13,000,000-gal. reservoir, concrete dam, approximately 25,000 ft. of 12, 10, 8 and 6-in. pipe, 37 hydrants, 36 valves and all accessories, material, tools and labor neces-

sary to complete the system, to John Siegrist, Utica, \$26,794.

**Cincinnati, O.**—Furnishing 48-in. check valve to Water Works Department, to Rensselaer Valve Co., \$1,047.50.

**Somerset, Pa.**—To D. W. Rhoads, city, for construction of the pipe line from new well just north of town to reservoir, which is necessary in carrying out plans of Engineer L. E. Chapin, of Pittsburg, for enlarging water works; about 4,400 ft. in length.

**Appleton, Wis.**—To O'Keefe-Orbison Engineering and Construction Co. for building dam at Appleton to cost from \$90,000 to \$100,000.

**Greybull, Wyo.**—Building water works system, to Garrard Construction Co., Sheridan, \$31,960.

## BIDS RECEIVED

**Hudson, N. Y.**—Laying larger water main on Second st.: Harper, Javo & Kehoe, Quincy, Mass., \$2.28, and Patterson & Malone, city, \$2.30; total, about \$4,857.

## LIGHTING AND POWER

**Murfreesboro, Ark.**—Plans are being prepared by W. A. Fuller, 1616 Chemical Bldg., St. Louis, Mo., for power plant to be erected by Pike County Water Co.; cost about \$850,000.

**Meridian, Cal.**—Pacific Gas and Electric Co. is preparing to extend its power lines from this city to Colusa.—J. A. Britton, San Francisco, General Manager.

**Redding, Cal.**—Fred. Dakin is interested in proposed installation of gas plant.

**Willow, Cal.**—Board of Supervisors has granted franchise to Sacramento Valley Power Co., Redding, to construct and maintain power line in Glenn County.

**Ventura, Cal.**—County Supervisors have granted to Ventura Power Co. franchise to lay and maintain 36-in. reinforced concrete pipe line.

**Norwich, Conn.**—Board of Gas and Electric Commissioners will install 750-kw steam turbo generator set and make other improvements to electric light plant; \$35,000 available.

**Jacksonville, Fla.**—Jacksonville Electric Co. will erect power house on Riverside ave.—Geo. J. Baldwin, Savannah, Ga., President.

**Kooskia, Ida.**—F. J. Engelhorn has asked for franchise to supply electric lights and power.

**Pocatello, Ida.**—J. A. Jones is considering construction of \$200,000 gas plant.

**Farmland, Ind.**—J. T. Moorman and Ed Goodrich, of Citizens' Water and Light Co., Winchester, have closed contract with Town Council to furnish Farmland with 38 electric street lights; also supply lights for all the residents and business men of Farmland who want them; work on extension from Winchester will commence as early as possible.

**Iowa City, Ia.**—The Cedar Rapids and Iowa City Interurban Railway Co. is planning to expend \$80,000 this year on improvements; company will erect substation; also remove substation from Coralville to North Liberty.

**Webster City, Ia.**—Council will purchase site on Superior st. for erection of power house.

**Frankfort, Ky.**—City has granted franchise to E. M. Wallace, manager Capitol Lumber Co., to construct electric light system.

**Midway, Ky.**—City is considering granting franchise to E. M. Wallace, manager Capitol Lumber Co., Frankfort, to furnish city with electric light; system is to be extended from Frankfort, distance 14 miles.

**Springfield, Mass.**—Mayor Edw. H. Lathrop has recommended municipal ownership of gas and electric lighting systems.

**Escanaba, Mich.**—Council has authorized Board of Public Works to secure site for erection of proposed city gas plant.

**Iron Mountain, Mich.**—L. Sterling and O. C. Davidson are interested in proposed erection of hydroelectric plant on Menominee River.

**Duluth, Minn.**—Citizens will vote in February on \$300,000 light and water bonds.

**Minneapolis, Minn.**—Plant of the Minneapolis General Electric Co. has been destroyed by fire and explosion.

**Minneapolis, Minn.**—Mayor J. C. Haynes has recommended replacement of old-style gasoline lamps with incandescent lamp heads and burners, making of new contract for incandescent gas street lighting and for electric lighting.

**South Stillwater, Minn.**—Citizens have voted \$5,000 bonds for improvement of lighting plant and streets.

**Tower, Minn.**—Citizens will vote on bonds to erect power plant at Pike River Falls; cost about \$15,000.

**Plattsburg, Mo.**—Rollins & Westover, Beals Bldg., Kansas City, are preparing preliminary plans for electric light plant.

**Penacook, N. H.**—Penacook Electric Light Co. is considering extension of transmission line.

**Camden, N. J.**—Mayor Chas. H. Ellis has recommended installation of additional lights along main thoroughfare.

**South Amboy, N. J.**—Mayor Michael A. Welsh has recommended appointment of committee to consider matter of municipal electric light plant.

**Buffalo, N. Y.**—Public Service Commission has granted Niagara and Erie Power Co. of Buffalo permission to issue \$510,000 bonds for improvements.

**Watertown, N. Y.**—Public Service Commission has authorized Deer River Power Co. to exercise franchise granted in towns of Champion and Denmark.

**Hickory, N. C.**—The Water Power Electric Co. has selected Connell & Connell, 90 West st., New York, as Chief Engineers for construction of water power electrical plant.—Louis R. Abel, 258 Broadway, New York, Resident Engineer.

**Hastings, Okla.**—Prices on wire and poles are desired by Mayor J. A. Marley.

**Oklahoma City, Okla.**—Oklahoma Street Railway Co. will erect addition to Belle Isle Power plant; will also enlarge substation at Olle ave. and 2d st.—A. J. Bemis, General Manager.

**Cottage Grove, Ore.**—Citizens have voted to extend franchise of present electric light company for period of 25 years.

**Freewater, Ore.**—Pacific Power and Light Co. will construct eight-mile electric power transmission line.

**Conneautville, Pa.**—Application has been made to Council by newly organized company for franchise to install electric light and heating plant.

**Lansdale, Pa.**—The Montgomery Heat and Fuel Co. is planning to erect complete plant.

**Wyomissing, Pa.**—Borough is considering issuance of \$60,000 bonds for electric light plant and water works.

**Watertown, S. D.**—Definite plan for lighting city is being urged by Manager Ferris, of light plant.

**Etowah, Tenn.**—Prices are desired by Mayor T. F. Peck on insulated or bare copper wire.

**Fort Stockton, Tex.**—Clay Bros., San Angelo, have been granted franchise to install electric light plant.

**Wichita Falls, Tex.**—Council has granted J. W. Culbertson and associates 25-year franchise to supply natural gas.

**Morgantown, W. Va.**—Morgantown and Dunkard Valley Railroad Co. is considering plans for erection of power house.

**Walla Walla, Wash.**—Practically whole of distribution system of Pacific Power and Light Co. south of Main st. will be rebuilt in near future, while system on other side of Main will also receive considerable attention and improvement.—W. B. Foshay, Manager.

**Bowmanville, Ont., Can.**—Seymour Power and Electric Co., Ltd., has been granted franchise.

**Hespeler, Ont., Can.**—Ratepayers will raise \$4,000 for extension of electric light for street lighting.

**Kingston, Ont., Can.**—Ratepayers have passed by-law for electric light improvements.

**Waterloo, Ont., Can.**—Ratepayers will raise \$40,000 for electric light purposes.

### CONTRACTS AWARDED

**St. Augustine, Fla.**—Lighting city, to St. Johns Light and Power Co., renewal.

**Belvidere, Ill.**—Lighting streets for ten years, to Public Service Operating Co.

**Albany, N. Y.**—To Wells-Boughton Co., Troy, for construction of hydroelectric plant at Crescent Dam, \$42,940.

**New York, N. Y.**—Furnishing 500 posts for Tungsten park lighting, to Elmer P. Morris Co., 90 West st.; about one-half are for regular installations and rest of new type and will be used for lighting of transverse roads through Central Park.

**Defiance, O.**—City has contracted with Defiance Gas and Electric Co. to furnish light for 10 years; street lamps are to be at rate of \$70 a year a lamp; commercial lighting is to be at rate of 9c. per kw-hour.

**Parksville, Tenn.**—By Eastern Tennessee Power Co. for electrical equipment for power plant, to Westinghouse Electric and Mfg. Co., Pittsburg, Pa.

**Dallas, Tex.**—To Dallas Electric Light and Power Co., to install and maintain decorative system of lighting on Elm st.

### FIRE EQUIPMENT

**Birmingham, Ala.**—Council has authorized purchase of 15 new motor-driven fire hose wagons at cost of \$65,000.

**Montgomery, Ala.**—Finance Committee has recommended erection of fire station on McDonough st.

**Trinidad, Col.**—Fire Chief Robert A. Daugherty has recommended erection of fire station on north side, purchase of combination auto chemical and hose wagon, ca-

capacity 2,000 ft. of hose and 65-ft. aerial truck, also installation of modern fire alarm system.

**Carterville, Ill.**—Fire department has been organized.—J. M. Brann, Fire Chief.

**Joliet, Ill.**—Police Chief McMasters has recommended purchase of auto.

**St. David, Ill.**—Town is considering purchase of chemical fire engine.

**New Albany, Ind.**—Finance Committee is considering \$2,500 appropriation for erection and equipment of reel house in Seventh Ward.

**Burton, Kan.**—City is considering purchase of fire engine.

**Chicopee, Mass.**—Mayor S. E. Fletcher has recommended purchase of motor-driven vehicle capable of serving as pumping engine and hose and chemical engine combined.

**Fall River, Mass.**—Mayor Higgins has recommended placing of all fire alarm wires underground and installation of more fire alarm boxes.

**Gloucester, Mass.**—Mayor Patch has recommended purchase of auto combination wagon for fire department.

**Malden, Mass.**—Mayor Fall has recommended auto chemical for Maplewood and auto for Fire Chief.

**Waltham, Mass.**—Mayor E. A. Walker has recommended purchase of auto chemical and auto for Fire Chief.

**Worcester, Mass.**—Mayor Jas. Logan is favorably to auto fire apparatus.

**Manchester, N. H.**—Mayor E. C. Smith has recommended purchase of modern, properly equipped aerial truck.

**Bayonne, N. J.**—Mayor John J. Cain has recommended erection of fire house.

**Belleville, N. J.**—Township is considering need of motor fire engine.

**Caldwell, N. J.**—Mayor John Espy has recommended establishment of fire alarm system.

**Camden, N. J.**—Mayor Chas. H. Ellis has recommended location of fire house in Eleventh Ward for combination hose and chemical wagon, auto being favored; installation of light steamer at present east side house and auto for Chief.

**Elizabeth, N. J.**—Mayor Alfred A. Stein has recommended erection of fire station in Eleventh Ward; also new home for company in Station No. 6 on Magnolia ave. and house in city yards, High and Port sts., for Engine No. 3 and additional truck company.

**Englewood, N. J.**—Chief Engineer Emile Rush has suggested need of auto fire engine.

**Glen Ridge, N. J.**—Mayor Giles W. Read has recommended new headquarters for fire department.

**Hackensack, N. J.**—Mayor Chas. W. Bell has recommended better equipment of fire fighting apparatus in Mercer st. fire house; auto apparatus favored.

**Hasbrouck, N. J.**—Establishment of fire alarm system is being considered.—A. C. Austin, Mayor.

**Jersey City, N. J.**—Architect Robert B. Morrison has submitted tentative plans for fire headquarters to be erected on Merseles st. at cost of \$250,000, including site.

**Roselle Park, N. J.**—Mayor Geo. H. Horning has recommended installation of fire alarm system and purchase of combination chemical hose cart.

**Roselle, N. J.**—Mayor Chas. W. Macquoid has recommended need of equipping fire department with modern apparatus.

**Somerville, N. J.**—Purchase of combination wagon is being considered.

**South Amboy, N. J.**—Mayor Michael A. Welsh has recommended that hook and ladder company be provided with hose carriage and sufficient quantity of hose.

**Trenton, N. J.**—President Chas. G. Cook, of Fire Board, has recommended erection of fire house and extension of fire alarm system.

**Albany, N. Y.**—City will try out gasoline propelled chemical and hose wagon; purchase of auto for Chief of Fire Bureau is being considered.

**Bath, N. Y.**—Village Trustees have decided to purchase 1,000 ft. of hose and rubber gloves and coats.

**Elmira, N. Y.**—Fire Commissioners have approved plans for erection of fire house on Roe ave.

**Endicott, N. Y.**—Fire house, cost \$20,000, will be erected next spring.

**Hornell, N. Y.**—Citizens have voted \$36,000 for erection of central fire house station.

**Mt. Vernon, N. Y.**—Plans by Architect Stickles have been accepted for erection of \$10,000 fire house on 6th ave.

**Syracuse, N. Y.**—Mayor Edward Schoenck has recommended that central fire alarm system be installed.

**Voorheesville, N. Y.**—Erection of fire station is being considered.

**Elyria, O.**—Purchase of combination chemical auto engine and hose wagon and erection of fire house is being considered.

**Norwalk, O.**—Council is considering readvertising for bids for proposed fire truck.

**Old Fort, O.**—Fire house will be erected and necessary apparatus installed.

**Altoona, Pa.**—Fire Chief T. W. Allemann has recommended purchase of combination chemical engine and hose motor car, auto for Chief, 1,000 ft. of 2½-in. rubber-lined cotton hose and turret pipe.

**Catasauqua, Pa.**—Fire station will be erected at cost of \$7,000.

**Lebanon, Pa.**—Fire Alarm Superintendent S. A. Burkholder has recommended additional and better equipment for city hall fire alarm apparatus, including switch-board and automatic repeater.

**Stowe, Pa.**—West End Fire Co. will purchase 500 ft. of hose.

**Pawtucket, R. I.**—Mayor Giles W. Easterbrooks has recommended changing of present hose wagon into motor-driven apparatus.

**Providence, R. I.**—Mayor Henry Fletcher has recommended extension of underground system of fire alarm service.

**Chattanooga, Tenn.**—Board of Public Works will at once ask bids for repairs to Whiteside st. fire hall.

**Clarkston, Wash.**—Fire department has been organized.—Geo. Bursell, Chief.

**Olympia, Wash.**—City is considering erection of two-story concrete fire station and city hall.

**Seattle, Wash.**—Board of Public Works has approved specifications for fire house at Hillman City.

**Toppenish, Wash.**—Fire station will be at once erected on east side.

**Collingwood, Ont., Can.**—Ratepayers have voted to erect fire hall and install modern equipment.

### CONTRACTS AWARDED

**Rochester, N. Y.**—To Standard Underground Cable Co. for 2,000 ft. of 20-conductor cable for fire department, \$556, and for 2,500 ft. of 8-conductor cable, \$357.50.

### BRIDGES

**Los Angeles, Cal.**—Ivory B. Noble, County Surveyor, has completed plans for bridge across Arroyo Seco at Garvanza, connecting with Lincoln Park-South Pasadena district.

**Jacksonville, Fla.**—Board of Public Works has authorized City Engineer to advertise for bids for construction of a reinforced concrete bridge across Hogans Creek, on East Bay st., to replace the present wooden structure; \$2,500 available.

**Batavia, Ill.**—State Highway Commission has prepared plans for erection of bridge at Wilson st.

**Kansas City, Kan.**—Engineer Kenneth Hartley, 349 Greeley st., will prepare plans and specifications for Mill and 18th st. viaducts.—Otto Anderson, Commissioner of Public Works.

**Boston, Mass.**—Council has passed \$10,000 loan order for preliminary work on proposed Chelsea north bridge.

**Dedham, Mass.**—City has awarded \$7,740 bridge and street bonds to Adams & Co.

**Ashland, Neb.**—Construction of bridge over Platte River is being urged.

**Toledo, O.**—Council has instructed Chief Engineer to supply estimate as to cost of rebuilding the old Cherry st. bridge at Ash and Consaul sts.

**Philadelphia, Pa.**—Survey Bureau has completed plans for widening of Chestnut st. bridge; \$90,000 available.

**Philadelphia, Pa.**—City has appropriated \$25,000 for bridge repairs.—Geo. Stearns, Commissioner of Public Works.

**Pittsburg, Pa.**—County Consulting Engineer E. M. Bigelow has recommended erection of bridge and tunnel from 1st and Ross sts. to Bell Tavern; cost about \$2,000,000.

**Reading, Pa.**—Berks County Court has approved recommendation for bridge across Schuylkill River between Reading and West Reading.

**Fredericksburg, Va.**—Supervisors of Spotsylvania County have decided to build bridge over Hazel Run and over Massapanox Run, on road leading from here to Spotsylvania Courthouse; bridges will be either concrete or steel.

**Chippewa Falls, Wis.**—Plans will be prepared for erection of \$35,000 bridge.

### CONTRACTS AWARDED

**Red Jacket, Minn.**—Building concrete bridge, to Marsh Engineering Co., Des Moines, Ia., \$12,650.

**David City, Neb.**—Bridge construction in county for year: Wooden bridges, to Nebraska Construction Co., Lincoln; cement culverts, to Wilson Reinforced Concrete Co., Nebraska City; metal culverts, to Nebraska Culvert Manufacturing Co., Wahoo.

**Hastings, Neb.**—To Standard Bridge Co., Omaha, for county bridge contract for year.

**Youngstown, O.**—Bridge with steel joists over Powers River for County Commissioners, to Hunter Construction Co., city, \$13,120.



## MISCELLANEOUS

**Gadsden, Ala.**—Etowah County will consider erection of jail.

**Arkansas City, Ark.**—Desha County is considering erection of addition to court house.—C. H. Halley, Judge.

**Los Angeles, Cal.**—Dennis & Farwell, Currier Bldg., will prepare plans for erection of sub-police station on Boyle Heights.

**Petaluma, Cal.**—Citizens have voted \$20,000 bonds for purchase of Kenilworth Park.

**San José, Cal.**—Park Commissioners will ask for bond issue of \$125,000 for following improvements: Bath house, two new bridges, septic tank, development of new mineral springs and of general water supply.

**Bridgeport, Conn.**—Council is considering \$105,000 bond issue for erection of hall of records.

**Bridgeport, Conn.**—Board of Park Commissioners has asked for following appropriations: Playground paraphernalia, \$2,765; improvements at Bardsley Park, \$1,500; miscellaneous, \$13,000.

**Bridgeport, Conn.**—Police department has asked for \$40,000 appropriation for purchase of site and erection of police station at West End.

**Waterbury, Conn.**—Mayor Wm. B. Hotchkiss has recommended issuance of \$20,000 bonds for remodeling of city hall.

**Waterbury, Conn.**—Superintendent of Parks George C. Walker has recommended number of improvements to park system, including playground in Brooklyn district and swimming pool in western section of city.

**Athens, Ga.**—Mayor Rowe has suggested erection of city stockade and necessity of city park.

**Chicago, Ill.**—Committee on Bathing Beaches and Recreation Piers will urge \$640,000 bond issue for improvements.—Aldermen Theo. K. Long and W. P. Dunn are interested.

**Mishawaka, Ind.**—City will advertise for bids in near future for police alarm system.—Harvey Frick, Chief of Police.

**Portland, Ind.**—County Commissioners will consider erection of court house.

**Cambridge, Mass.**—Citizens have petitioned for establishment of municipal hospital for caring for sick poor.

**Lawrence, Mass.**—Mayor Cahill has recommended city hall, police station and relief hospital.

**Lowell, Mass.**—Mayor John T. Meehan has recommended purchase of land for small playgrounds in congested centers.

**Lynn, Mass.**—Police Chief Burckes has recommended purchase of auto chemical and touring car for Inspectors; also remodeling of police station.

**Malden, Mass.**—Mayor Fall has recommended use of some dust-laying preparation on streets.

**New Bedford, Mass.**—Mayor Ashley has recommended petitioning of Legislature to issue \$35,000 bonds to build and equip city hall, systematic tree planting, creation of public landing place and recreation pier, repairing of railings and better lighting of New Bedford and Fair Haven bridge and immediate equipment of lately secured playground.

**Northampton, Mass.**—Mayor Calvin Coolidge has recommended erection of city hall.

**Quincy, Mass.**—Mayor Wm. T. Shea has recommended development of city's 27 miles of water front.

**Sandwich, Mass.**—Town hall will be remodeled at cost of \$3,000.

**Somerville, Mass.**—Mayor Chas. A. Burns has recommended auto wagons for police department.

**Taunton, Mass.**—Mayor Woods has recommended erection of public comfort station near Taunton Green.

**Winthrop, Mass.**—City will receive bids Jan. 12 for \$5,000 playground bonds.

**Cloquet, Minn.**—Erection of modern two-story city jail is being considered.

**Minneapolis, Minn.**—Mayor J. C. Haynes has recommended establishment of poor house, erection of separate building for contagious diseases, erection of wing to City Hospital and alterations to old part; also building of branch and central library buildings.

**Minneapolis, Minn.**—Alderman John Peterson is urging establishment of municipal ice house.

**St. Paul, Minn.**—John Nolen, Landscape Architect, Cambridge, Mass., is preparing plans for elaborate city plan arrangement; Municipal City Plan Commission and City Club will carry on work.

**Manchester, N. H.**—Mayor E. C. Smith has recommended erection of house of detention for women.

**Bayonne, N. J.**—Mayor John J. Cain has recommended removal of ashes and garbage by contract.

**Burlington, N. J.**—Mayor Chas. P. Farmer has recommended creation of small city park.

**Caldwell, N. J.**—Mayor John Espy has recommended establishment of public park and better methods for garbage disposal.

**Garwood, N. J.**—Citizens will vote Feb. 18 on \$5,500 bonds for erection of borough hall.

**Jersey City, N. J.**—Architect Robert B. Morrison has submitted tentative plans for police headquarters to be erected on Merseles st. at cost of \$250,000, including site.

**Jersey City, N. J.**—Hudson County Park Commission has adopted plans for improvement of North Bergen site, providing for spacious playgrounds, many miles of drives and gravel walks, a large lake, a small pond and observation pavilion.

**Newark, N. J.**—Mayor Haussling has again recommended comprehensive study of general topography and layout of city with view to replanning of streets wherever necessary.

**Roselle, N. J.**—Mayor Chas. W. Macquoid has decided to appoint committee to take up question of better plan for disposal of ashes and garbage; also recommended advisability of placing street signs throughout borough.

**Trenton, N. J.**—Grounds and Buildings Committee of Park Board has been directed to receive plans and bids for public comfort station in Cadwalader Park.

**Batavia, N. Y.**—Plans have been completed by City Engineer Wentworth for garbage crematory.

**Buffalo, N. Y.**—Bids will soon be asked for constructing sections 3 and 4 of Buffalo River improvement.—Louis P. Fuhrmann, Mayor.

**Kingston, N. Y.**—Mayor Rosco Irwin has recommended erection of building to house apparatus of police and street departments.

**Poughkeepsie, N. Y.**—Mayor Sague has recommended cleaning of paved streets by means of flushing machine.

**Rochester, N. Y.**—James A. Salter, architect, has presented to Mayor H. H. Edgerton plans for street paralleling Main st., for new city hall on Church st., for bridge across river and for a union trolley station over river bed at Central ave.

**Syracuse, N. Y.**—Mayor Edward Schoenck has recommended that \$100,000 to be provided by bond issue be allotted to Park Commission for permanent park improvements and that playgrounds be provided for children in congested district.

**Charlotte, N. C.**—Crematory has been destroyed by fire.

**Hamilton, O.**—Geo. E. Kessler, Landscape Architect, Kansas City, Mo., has made offer to prepare plans for construction of proposed \$1,000,000 civic center.

**Oklahoma City, Okla.**—Plans will be prepared by Alex. Potter, New York, N. Y., for proposed garbage disposal plant.

**Port Clinton, O.**—Citizens will vote early in February on erection of \$25,000 city hall.

**Newport, R. I.**—Mayor Patrick J. Boyle has recommended establishment of playgrounds.

**Providence, R. I.**—Mayor Henry Fletcher has recommended rebuilding of Wonsquatucket River walls and establishment of more city playgrounds.

**Pawtucket, R. I.**—Mayor Giles W. Easterbrooks has recommended establishment of public docks, erection of comfort station and erection of police station.

**Highmore, S. D.**—Plans are being prepared by Black Hills Co., Deadwood, for erection of \$75,000 stone court house.

**Fort Worth, Tex.**—Police Commissioner Geo. Mulkey is favorable to establishment of municipal store room; also erection of levee to protect water plant.

**Norfolk, Va.**—Controllers are having plans drawn for lodge house at Forest Lawn Cemetery.—A. Eberhard, Architect.

**Olympia, Wash.**—City is considering erection of two-story concrete city hall and fire station.

**Goderich, Ont., Can.**—Ratepayers have voted to build municipal building.

## CONTRACTS AWARDED

**San José, Cal.**—To Henshaw, Bulkley & Co., to furnish sanitary street flushing machine, \$910.

**Rochester, N. Y.**—To Selden Motor Vehicle Co. for automobile for City Engineer Fisher's department, \$1,600 and old machine now in use in department.

**Philadelphia, Pa.**—Removing garbage for year, to Penn Reduction Co., \$570,000.

## BIDS RECEIVED

**Akron, O.**—Furnishing auto for Chief Mertz: Kanawa Chemical Co., Kanawa, Pa., bid \$4,750; turned down because it was not accompanied by certified check; Auto Garage, city, \$2,875, and the Webb Motor Company, \$2,950.

## TOO LATE FOR CLASSIFICATION

## STREET IMPROVEMENTS

**Los Angeles, Cal.**—Board of Supervisors has instructed the Highway Commission to take immediate steps towards finishing the harbor boulevard.

**Atlanta, Ga.**—Council has adopted resolution instructing Chief of Construction to secure cost of widening Peachtree st.; also is considering \$18,500 appropriation to pave Marietta st., and resolutions for paving portions of 11 streets.

**Chicago Heights, Ill.**—City is considering 4,000 sq. yds. vit. brick paving.—A. L. Fox, City Engineer; J. C. Mote, Mayor.

**Mandeville, La.**—Council has adopted banquet ordinance, which requires banquet on Lake st. and in the business portion of town to be paved with bricks, shells or cement work; work will be commenced on Marigny ave. at early date.

**New Orleans, La.**—Plans have been submitted for installation of subsurface drains, curbs, gutter bottoms, etc., and the paving of North Cortez st., St. Louis to Toulouse st., with granitoid.

**Portland, Me.**—Estimates of cost will be finished for grading Seaside ave. and paving Franklin st. with granite blocks.

**Laurel, Miss.**—Mayor Noble has recommended substitution of other material for wooden walks.

**Cape May, N. J.**—County Freeholders will

be asked to build country road from Green Creek to Goshen.

**Collingswood, N. J.**—Highway Committee has been instructed to make a thorough inspection of all thoroughfares with view of determining which are most in need of improvement.

**Millville, N. J.**—Mayor W. Fred Ware has recommended paving of streets.

**Cincinnati, O.**—City Engineer Shipley has reported total cost of the wood block improvement of Ohio ave. as \$28,478.97; also submitted approximate estimate for paving with brick, Beldare ave., Tower to Vine sts., \$8,796.

**Montpelier, O.**—Special election will be held Jan. 31 to vote on proposition of issuing bonds for paving; Riggs & Sherman, Engineers, Toledo, have furnished an estimate for paving two principal streets at a cost of from \$50,000 to \$70,000.

**Chester, Pa.**—Property owners on Parker st., between Third and Fifth sts., have decided to petition Council to resurface roadbed of that thoroughfare with fibbertine paving material.

**Hazleton, Pa.**—Council has passed ordinance for paving North Pine st. from Broad to Holly.

**Houston, Tex.**—Council has received petitions for shelling Hardy and Shea sts.

**Sherman, Tex.**—Citizens will vote on \$10,000 bonds for street improvements.

**Everett, Wash.**—Board of Public Wks. will ask for bids for improving Hoyt ave. and Fair ground district; also for purchase of 50,000 ft. of lumber for Street Department.

**Seattle, Wash.**—Council has decided to pave University st., Ellicott ave. and Olympic way, also bridge roadway on Twenty-third ave. West.

**South Bend, Wash.**—Council will consider paving of Water st.; distance 1½ mi.

**Spokane, Wash.**—Board of Public Works has rejected bids for paving Wall st.; cost, about \$52,000; no bids were received for grading, curbing and sidewalk Bine Court; cost about \$1,830.

**Pasco, Wash.**—Council will consider paving of business district.

## CONTRACTS AWARDED

**Cincinnati, O.**—Improving Elmore st. with brick, to Wm. P. Flynn, \$2,784.55; David st. with asphalt, to Kerschner Construction Co., \$3,504.20.

**Chehalis, Wash.**—To W. J. Murphy, Tacoma, for construction of nearly 10 miles of sanitary sewerage in southern and eastern portions of city, \$51,258 for a vitrified system.

## BIDS RECEIVED

**Spokane, Wash.**—Paving with granitoid concrete Bernard st., Pacific to 8th ave.,

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS</b>				
Washington	Spokane	Jan. 16, 2 p.m.	Imp. Wall st. by grade, curb and pave.	J. C. Argall, Secy. Bd. Pub. Wks
<b>SEWERAGE</b>				
Iowa	Fort Dodge	Jan. 13, 1:30 p.m.	Constr. drainage dist No. 48, compr. 700 ft. of 8-ft. tile.	J. L. Hanrahan, County Auditor
<b>WATER SUPPLY</b>				
Washington	Spokane	Jan. 20, 2 p.m.	Furn. 1,950 lin. ft. 8-in. water pipe and 9,600 ft. 16-in. pipe.	John Gifford, City Purchas. Agt.
<b>FIRE EQUIPMENT</b>				
Kentucky	Louisville	Jan. 24, 2 p.m.	Erect 64 fire hydrants.	Chas. Cronan, City Clerk.
<b>MISCELLANEOUS</b>				
California	Oakland	Feb. 1, 11 a.m.	Excavating for City Hall, grad. ath. field and park lands and around fire alarm building.	J. W. Nelson, Secy. Bd. Pub. Wks.
Washington	Spokane	Jan. 20, 2 p.m.	Furn. one auto propelled comb. police patrol and ambulance.	John Gifford, City Purchas. Agt.

and Boone ave., Pearl to Division st., Jas. Fife and Fife Bros. lowest bidders, \$37,500 on Bernard job and \$11,744 on Boone ave. work; City Engineer's estimates, \$36,900 and \$11,600, respectively; R. C. Blome & Co., holders of the granitoid concrete patent, bid \$41,200 and \$12,600 on two contracts; Boyington, Church & McCoy submitted bids on both these jobs, but they were rejected for reason that bids were made on condition that the city save bidder harmless from damages which might be claimed by Blome Co. for infringement of patent; Bernard st., \$40,500; Boone ave., \$11,600; grading, curbing, parking and sidewalk Lacey st., 29th to 33d ave., Inland Engineering Co., \$6,550; Naylor & Norlin, \$6,589; estimate \$6,550; paving 8th ave. with brick, Cannon to Chestnut st., James Fife, \$4,352; estimate was \$3,550; sewerage Maine ave., Cedar to Ash st., G. Burgie, \$3,050; no bids were received for grading, curbing and sidewalk Bine Court from Bine st. to Crestline st.; estimate \$1,530.

## SEWERAGE

Atlanta, Ga.—Council has adopted resolution instructing Chief of Construction to make surveys of streets in Tenth Ward that are without sewers and outfalls and to estimate cost.

Lexington, Ky.—Mayor Skein has recommended construction of main sewer in southeastern portion of city at cost of \$2,000.

Portland, Me.—Estimates of cost will be furnished for sewerage Stevens ave. and Belknap st.

McComb City, Miss.—Dr. Louis D. Dickerman, Chairman Board of Health, has recommended immediate installation of sewer system.

Glasgow, Mo.—Burns & McDonnell, Scarritt Bldg., Kansas City, are preparing plans for sewers and water works, cost \$35,000; bond issue declared legal.

Lestershire, N. Y.—Board of Trustees will consider extension of East Main st. sewer.

Watertown, N. Y.—Board of Public Works has passed a resolution ordering plans and specifications for sewer in Grove and Moulton sts.

York, Pa.—Dr. Bennett, Chairman, Sanitary Committee, has recommended early completion of sewerage system and \$10,000 appropriation annually for sewer work.

Corpus Christi, Tex.—Engineer F. H. Lancashire, Houston, will supervise construction of proposed sewer system; cost, \$75,000.

Corsicana, Tex.—Construction of sewer system to Truehart S. Jackson, San Antonio, \$16,433.30; other bidders: Collins Bros., Houston, \$19,588; Dallas Lime and Gravel Co., Dallas, \$18,440; H. W. Cardwell, Mena, Ark., \$18,450; Tarrant Construction Co. also bid.

## WATER SUPPLY

Fort Smith, Ark.—Council plans to levy tax to raise funds for purchase of water plant, franchise of operating company having expired; plant valued at \$442,000.

White City, Kans.—Plans and specifications are being prepared by Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., for municipal water works and lighting plant; approximate cost \$25,000.

Glasgow, Mo.—Plans and specifications are being prepared by Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., for water works and sewers costing approximately \$35,000; bond issue has recently been declared legal.

Cape May, N. J.—By Council, to John W. Corson, Jr., for erection of 50,000-gallon stand-pipe for water works.

Akron, O.—Water Expert F. A. Barbour has been employed by city at expense of \$8,500 to prepare plans for new water works plant and to make estimate of cost of old water plant.

West Telford, Pa.—Council has granted the Telford Water Company permission to construct and operate a water system in borough.

Polytechnic Heights, Tex.—City Commission has instructed Clerk Valentine to secure plans for construction of water works plant.

Sherman, Tex.—Council has decided to call election on \$22,000 bonds of extension of water mains and improvement of pumping plants.

Pasco, Wash.—Council will consider distribution of water to outlying districts.

Snohomish, Wash.—Council has passed ordinance to adopt the plans to extend city water system by bringing water by gravity from the mountains; plan provides for dam on the Pilchuck, 16 miles from the city, and laying of 81,000 ft. 14-inch pipe line to city; system calls for 1,500,000 gallons a day of pure mountain water to be placed in two reservoirs, one now in use and one to be built fifty feet higher to accommodate residents of hill district. Cost, \$110,000; bond election will be held Jan. 24. Engineer C. H. Green, Spokane, engineer in charge of survey.

## CONTRACTS AWARDED

Gloucester, Mass.—To L. E. Smith Company, to supply Department with car load of one and two-inch pipe, \$1,189.70; other bidders: Raymond, Dow & Company, Boston, \$1,198.40; J. H. Cunningham Co., Boston, \$1,202.50; L. E. Andrews & Company, city, \$1,190.50; George Uhler, Boston, \$1,248; W. H. Gallis & Company, Boston, \$1,354.66; A. P. Stoddard & Company, city, \$1,192.50, and Walworth Manufacturing Company, Boston, \$1,192.50.

## LIGHTING AND POWER

Auburn, Cal.—Offer to install new system of street lighting has been made to City Trustees by Frank Bell, manager of Bell Electric Company; proposed to do away with present arc lights and put in Tungsten lights, one on each pole along the streets, system to cost between \$4,000 and \$5,000.

Fairbury, Neb.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., are preparing plans for electric light and water works improvements; bonds sold; cost \$40,000.

White City, Neb.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., are preparing plans for municipal lighting and water works plant; cost \$25,000.

Weiner, Tex.—Weiner Water, Light, Ice and Cold Storage Co., Wm. Hillje, president, will take over, enlarge and improve local electric light plant.

## FIRE EQUIPMENT

Oakland, Cal.—Furnishing and installing in the new fire alarm building at Thirteenth and Oak streets relay and tape instruments as part of fire alarm equipment, to Gamewell Company, \$2,312.

Lexington, Ky.—Fire Chief Jesse has recommended erection of two fire stations, each equipped with motor comb. wagons; also purchase of first-size fire engine, self-hoisting 75-ft. aerial truck, preferably of motor type, and quantity of hose.

Millville, N. J.—Mayor W. Fred Ware has recommended better apparatus for firemen.

Trappe, Pa.—Fire Company has been organized by election of W. F. Rushong as President.

## BRIDGES

Bridgeport, Conn.—Mayor Buckingham will be authorized to appoint committee to make all necessary arrangements for and to have charge of erection of bridge across Pequonnock River at East Washington ave.

Atlanta, Ga.—Finance Committee is considering appropriation of \$10,000 for purchase of lands to be used in construction of viaduct across railroad tracks at Bellwood ave. and \$60,000 for building span across tracks and approaches.

Dallas, Tex.—To Missouri Valley Bridge and Iron Co., for construction of the Wilmer, Hutchins and Malloy bridges across Trinity River, by the County Commissioners' Court; \$41,780.

## MISCELLANEOUS

San Jose, Cal.—Chief of Police Kidder is considering installation of police "flash-light" signal and telephone system throughout business section of city.

Atlanta, Ga.—Finance Committee is considering erection of city prison; old stockade to be sold.

Lexington, Ky.—Mayor Skein is favorable to erection of proposed police station.

Holyoke, Mass.—Police Department has recommended installation of police signal system and purchase of auto patrol wagon.

Kingston, N. Y.—Plans have been prepared for erection of building on O'Reilly st. for storage of city apparatus.

York, Pa.—Dr. Bennett, Chairman, Sanitary Committee, has recommended erection of municipal abattoir.

Marlin, Tex.—Council has decided to install garbage crematory after plans suggested by State Health Officer Brumby.

## CONTRACT AWARDED

Louisville, Ky.—Placing street intersection signs, to E. L. Winston & Co.

Lucedale, Miss.—To Hull Construction Company, Jackson, to build the George County Court House and Jail, \$33,296.



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